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REPORT
OF THE
TESTS OF METALS
AND
OTHER MATERIALS
FOR
INDUSTRIAL PURPOSES
MADE WITH THE
UNITED STATES TESTING MACHINE AT WATERTOWN ARSENAL,
MASSACHUSETTS,
DURING
THE YEAR ENDED JUNE 30, 1886.

IN TWO PARTS.
PART I.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1889.

THE
FIRST OF THE
GREAT
INDUSTRIAL
REVOLUTION
IN THE
NINETEENTH
CENTURY
BY
J. H. COOPER
OF THE
UNIVERSITY OF
CAMBRIDGE
LONDON
1891

TESTS OF IRON, STEEL, AND OTHER MATERIALS.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING

With a letter from the Chief of Ordnance, U. S. Army, a report of tests of iron and steel and other materials for industrial purposes.

DECEMBER 14, 1886.—Referred to the Committee on Manufactures and ordered to be printed.

WAR DEPARTMENT,
Washington City, December 13, 1886.

The Secretary of War has the honor to transmit to Congress a letter of the Chief of Ordnance, U. S. Army, dated the 29th ultimo, and its accompanying report of "Tests of iron and steel and other materials for industrial purposes," made at the Watertown Arsenal with the United States testing-machine during the fiscal year ending June 30, 1886.

The Chief of Ordnance concurs in the recommendation of the commandant of the arsenal that a small machine should be procured to test minor specimens in order to relieve the large machine from such work and confine its use to the testing of full-size members of structures, for which it was specially designed. He expresses the opinion that the distribution of copies of these reports should be made as extended as possible in order to meet the frequent and persistent applications therefor.

The views of the Chief of Ordnance are concurred in by this Department.

WILLIAM C. ENDICOTT,
Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

ORDNANCE OFFICE, WAR DEPARTMENT,
Washington, D. C., November 29, 1886.

SIR: I have the honor to submit herewith for transmission to Congress as provided by law, Maj. F. H. Parker's annual report of "Tests of iron and steel and other materials for industrial purposes," made at the Watertown Arsenal, Watertown, Mass., with the United States testing-machine, during the fiscal year ending 30th June, 1886.

I concur in the recommendation for a small machine to test minor specimens.

The object is to relieve the large machine from such work and confine its use to the testing of full-size members of structures, for which it was specially designed. The results would be of the greatest advantage to engineers throughout the country.

The frequent and persistent calls for copies of these reports conclusively prove their practical value, and their distribution should be made as extended as possible.

Very respectfully, your obedient servant,

S. V. BENÉT,
Brigadier-General, Chief of Ordnance.

The SECRETARY OF WAR.

WATERTOWN ARSENAL,
Watertown, Mass., August 31, 1886.

SIR: I have the honor to submit herewith the annual report of tests of iron, steel and other materials made at this arsenal with the United States testing-machine during the fiscal year ending June 30, 1886.

The testing work has been continuous and uninterrupted, the testing-machine having been used to its full capacity by Mr. J. E. Howard, the expert engineer of tests.

There were tested during the year a total of 2,132 specimens, of which number 1,895 were public and 237 private tests. Of the private tests 149 were from Massachusetts, 1 from New Hampshire, 7 from Rhode Island, 10 from New York, 35 from Pennsylvania, 2 from Kentucky, 2 from Missouri, 14 from Ohio, 6 from Minnesota, 11 from Montreal, P. Q. A list of the parties for whom tests were made is appended.

A large portion of the public tests were made for the Ordnance Department in its test of materials for gun construction and in experiments connected therewith.

Of the miscellaneous tests some of the most interesting are the continuation and completion of the tests of steel-plate riveted joints, and of a series of brick piers, both continued from the report of the preceding year. Also the commencement of a series of temperature tests, the object of which is to investigate the effect of different degrees of heat upon the strength and elastic limit of iron and steel bars. Also tests of railway-car axles which have been run different lengths of time. Also of the cubic compression of various metals and wood and a series of tests for the U. S. Geological Survey on the compression of metals and chemical salts in a hollow cylinder.

I renew my recommendations previously made for the procurement of an additional smaller testing-machine to work on the numerous small specimens used in testing gun material and in other cases where such pieces are necessarily used, reserving the larger machine for tests of large specimens and full-size members of structures which it alone can

accommodate and test and for which it was specially designed. Being relieved of so much routine work it will give more opportunity to carry on series of industrial tests and experiments, which will be of interest and advantage to the engineering world.

The desirability of a more liberal distribution of the results of the testing work done by the Government as exhibited in the annual report is urged. Applications are frequently made for copies of these reports, and when it is understood that the reports for 1884 and 1885 are not yet out, and that those previously printed are but limited in number, it would seem as if the full benefits of the work and of the annual appropriations were far from being realized. It is believed that the information the reports contain is valuable and should be widely disseminated among engineers and builders.

The receipts and expenditures for the year were as follows:

Testing-machine, 1886.

Amount appropriated for testing-machine and testing work.....	\$10,000.00
Amount received during the fiscal year for private tests.....	466.82
	10,466.82
Expended for services and labor.....	8,043.96
Expended for steam-power, tools, implements, repairs, and improvements.	2,379.66
Deposited to credit of Treasurer of the United States	43.20
	10,466.82

I also send herewith the reports of chemical analyses made during the year by Capt. John Pitman, Ordnance Department, U. S. Army.

Very respectfully, your obedient servant,

F. H. PARKER,

Major, Ordnance Department, U. S. Army, Commanding.

The CHIEF OF ORDNANCE, U. S. ARMY,
Washington, D. C.

WATERTOWN ARSENAL,
Watertown, Mass., December 17, 1885.

SIR: I have the honor herewith to inclose my report of analyses of water from wells near machine-shop and officers' quarters at Sandy Hook, N. J. The samples were received September 2. The analysis was made on the request of Captain Whipple.

I remain, very respectfully, your obedient servant,

J. PITMAN,
Captain of Ordnance.

Maj. F. H. PARKER,
Commanding.

Analyses of well-waters received from Sandy Hook September 2, 1885.

	From machine- shop.	From officer's quarters.	Remarks.
Ammonia (free)	.045	.015	Parts per 1,000,000.
Albuminoid ammonia	.080	.055	Do.
Sulphuric acid	.0352	.0170	Grams per liter.
Chlorine	.0225	.0142	Do.
Soluble residue	.1332	.1255	Do.
Insoluble residue	.1005	.1061	Do.
Silica	.0014	.0013	Soluble residue, grams per liter.
Iron and alumina	.0005	.0012	Do.
Lime	.0109	.0127	Do.
Magnesia	.0053	.0117	Do.
Soda	.0419	.0296	Do.
Potash	.0042	.0003	Do.
Silica	.0074	.0087	Insoluble residue, grams per liter.
Iron and alumina	.0015	.0024	Do.
Lime	.0408	.0412	Do.
Magnesia	.0083	.0064	Do.

WATERTOWN ARSENAL,
Watertown, Mass., June 9, 1886.

SIR: In accordance with your order of March 8 I have the honor to report as follows as regards two samples of sheet metal received from Colonel Crispin March 8:

	Regular cartridge metal.	Aluminium bronze.
Elastic limit	12,591	26,608
Tensile strength	38,341	49,415
Elongation in 5 inches	44	44.8
Thickness	.0925	.0917
Specific gravity	8.8177	8.4439

RESULTS OF ANALYSIS.

	<i>Per cent.</i>	<i>Per cent.</i>
Copper	91.82	96.44
Zinc	7.92	0.04
Iron	0.09	0.19
Aluminium		3.02
Silver	0.04	
Arsenic	0.05	
Antimony	0.04	
Silicon		0.53

Very respectfully, your obedient servant,

Maj. F. H. PARKER,
Commanding.

JOHN PITMAN,
Captain of Ordnance.

WATERTOWN ARSENAL,
Watertown, Mass., June 22, 1886.

SIR: I have the honor to report the following as the result obtained from the analysis from test specimens marked $\frac{32}{B} T_1$ and $\frac{32}{B} T_2$, having been taken from the breech-end of tube for the 3'' .2 steel breech loading rifle No. 1, now in the process of manufacture at this arsenal:

	Per cent.		Per cent.
Silicon.....	0.127	Manganese.....	0.671
Phosphorus....	0.033	Copper.....	0.02
Sulphur.....	0.024	Cobalt.....	0.021
Total carbon...	0.377	Nickel.....	0.034

I remain, very respectfully, your obedient servant,

JOHN PITMAN,
Captain of Ordnance.

Maj. F. H. PARKER,
Commanding.

WATERTOWN ARSENAL,
Watertown, Mass., January 1, 1886.

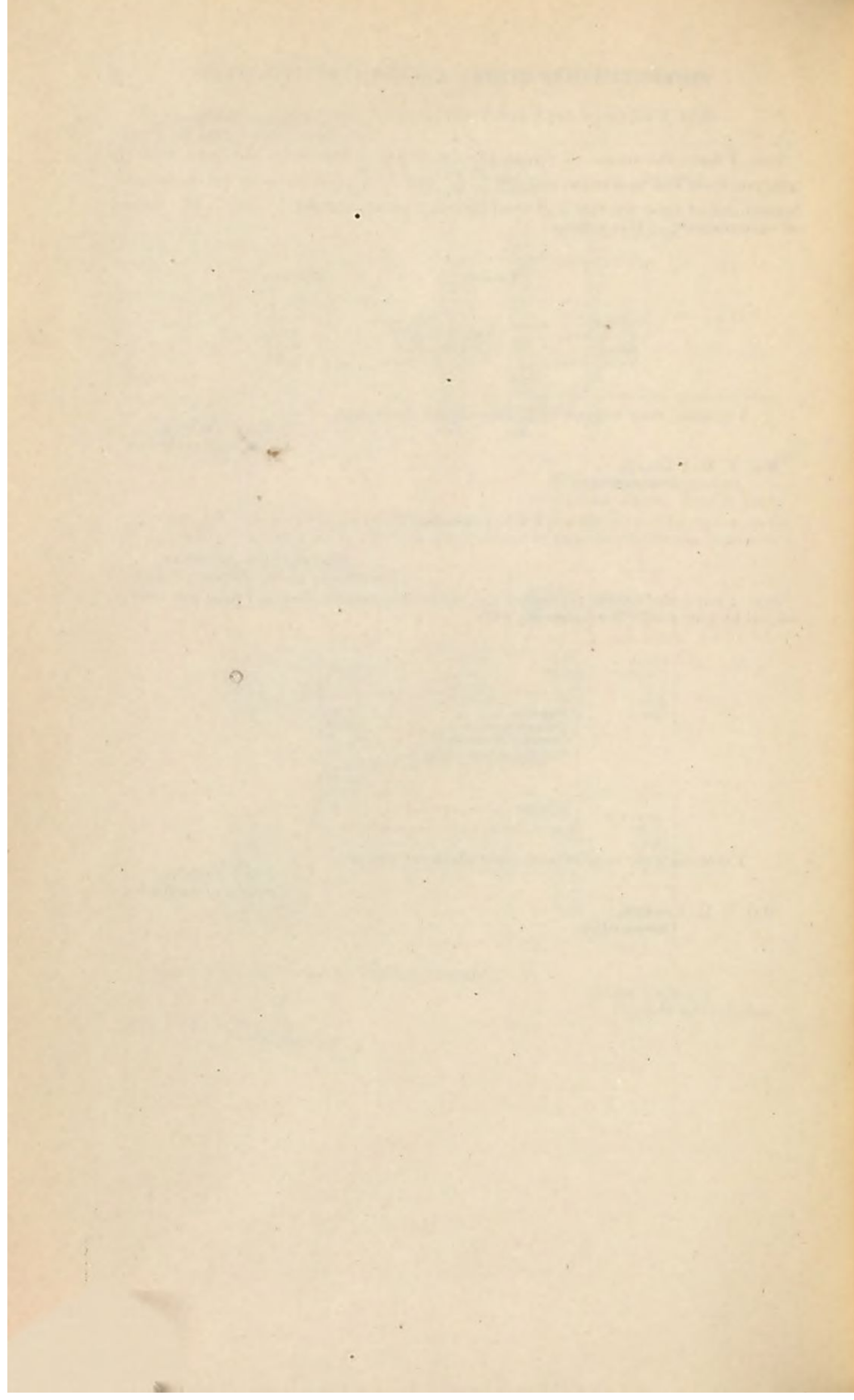
SIR: I have the honor to report the following results obtained from gas-coal received by gas-works December 16, 1885:

	Per cent.
Moisture.....	0.92
Volatile matter.....	31.04
Combustible matter.....	61.58
Ash (light lead color).....	6.46
	100.00
Sulphur.....	2.05

I remain, very respectfully, your obedient servant,

JOHN PITMAN,
Captain of Ordnance.

Maj. F. H. PARKER,
Commanding.



REPORT OF TESTS
ON THE
STRENGTH OF STRUCTURAL MATERIAL
MADE AT THE
WATERTOWN ARSENAL, MASS.,
DURING THE
FISCAL YEAR ENDED JUNE 30, 1886.

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3".2 STEEL B. L. RIFLES.

STEEL SPECIMENS

FROM

TUBES, JACKETS, TRUNNION-HOOPS, BREECH-BLOCKS, BASE-
RINGS, SLEEVES, AND OBTURATOR STEMS.

STREET 100

STREET 100

STREET 100

TUBES—3.3 INCH B. L. RIFLES

No. 1629

3.3 Rifle

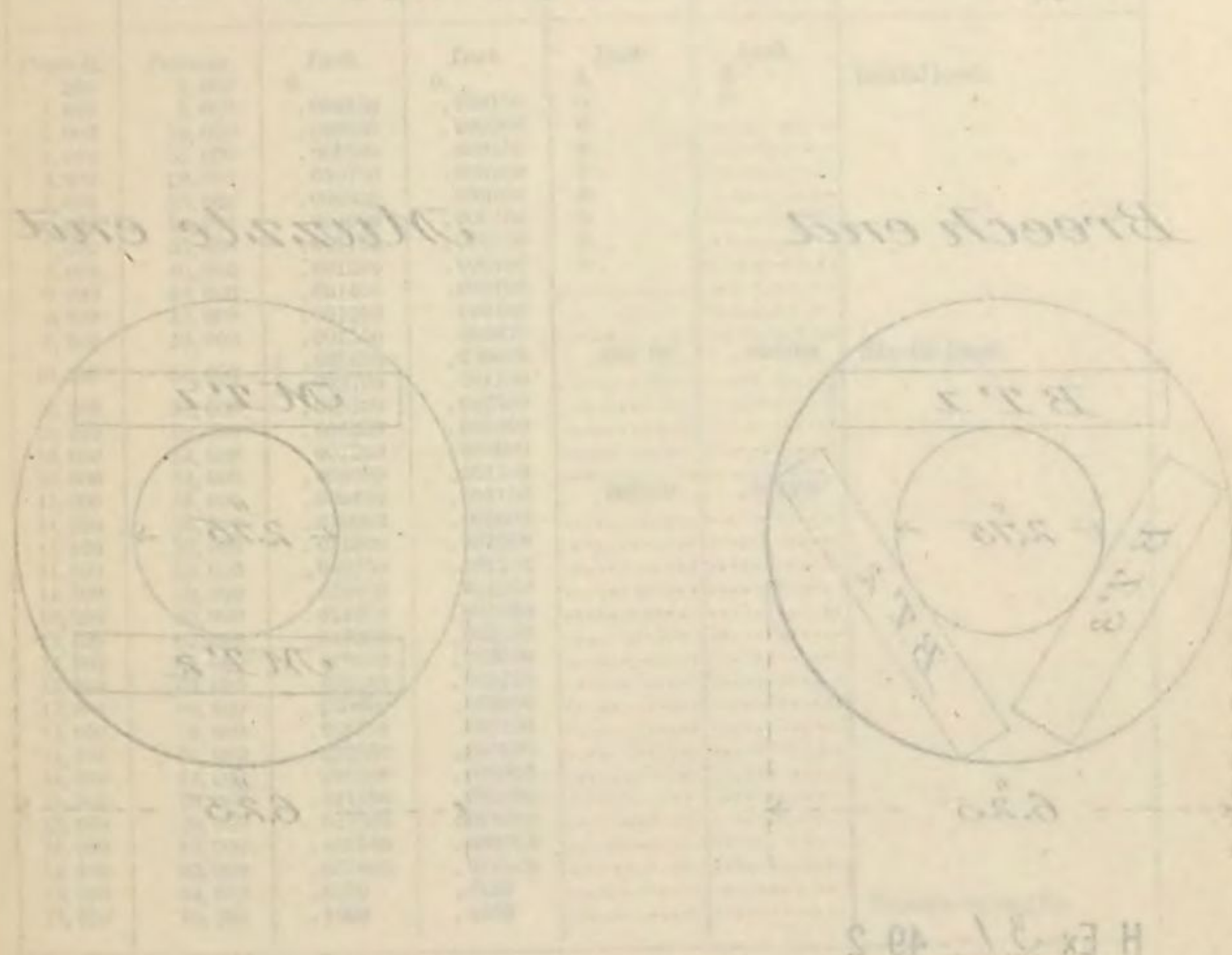
Tube

Mark, 21.

1000 ft.

about 1000 ft. from base

General character showing
positions from which
specimens were taken



H Ex 3 \ 40 S

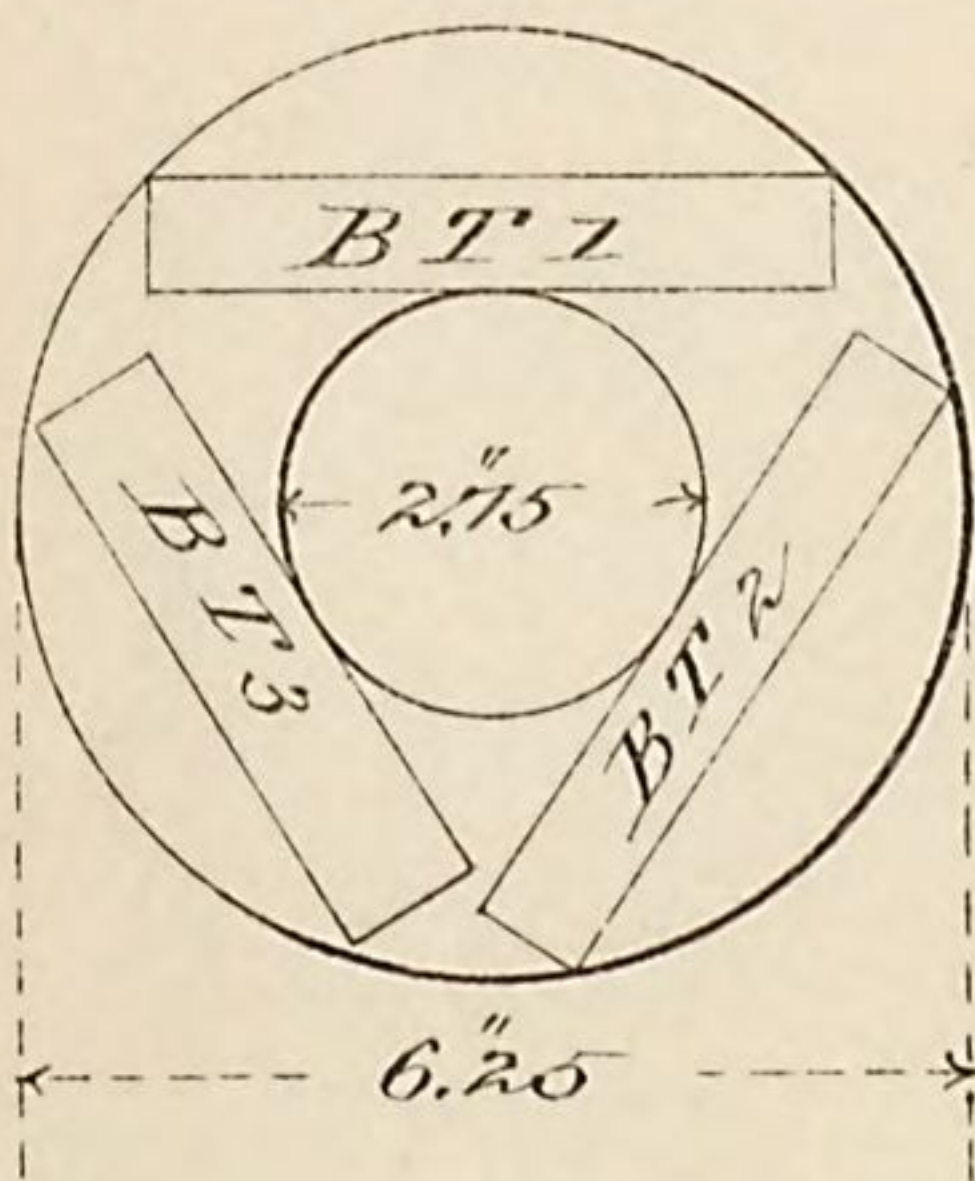
Specimens taken

The following table gives a list of the specimens taken from the tubes, and the positions from which they were taken. The specimens are numbered 1 to 10, and the positions are numbered 1 to 10. The specimens are taken from the tubes, and the positions are numbered 1 to 10.

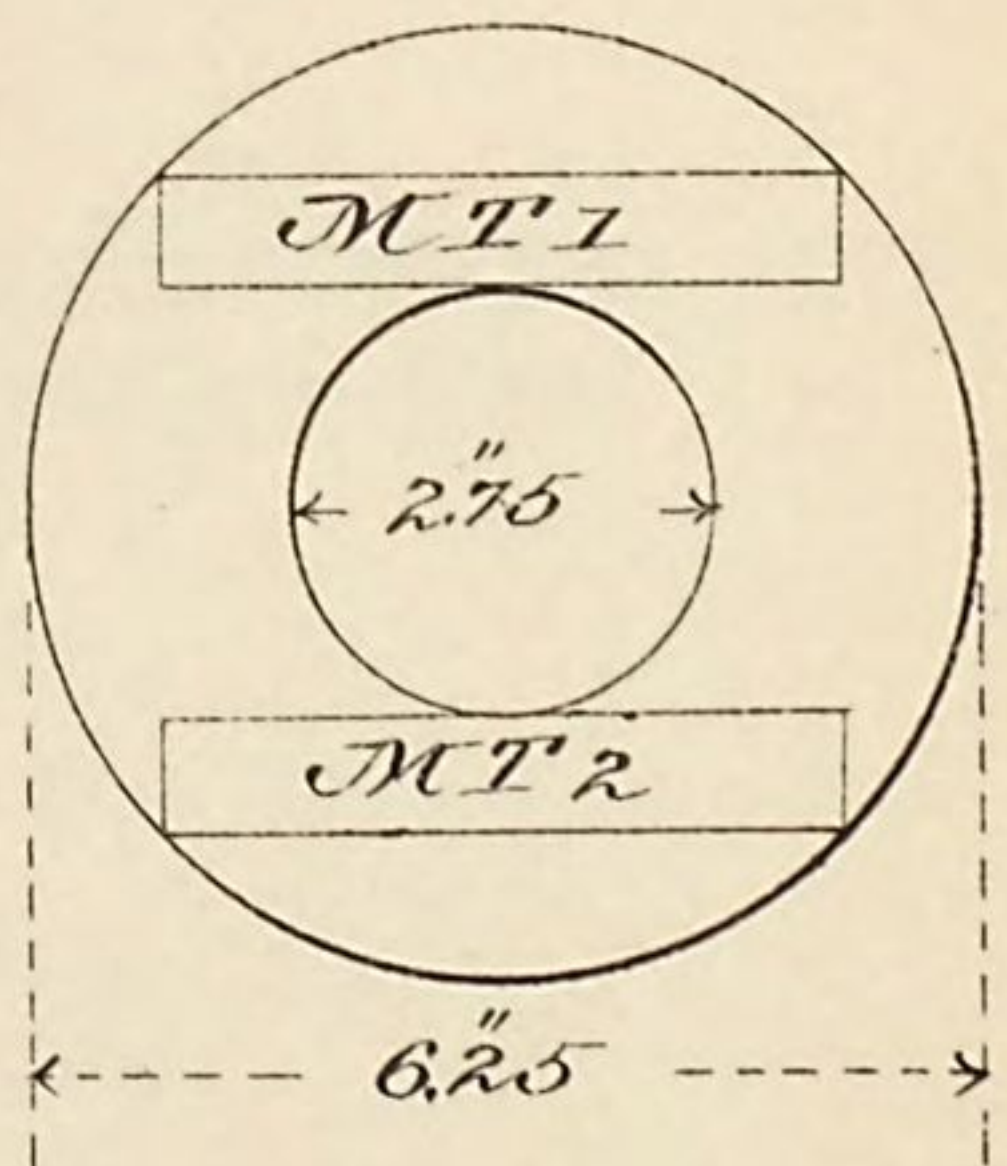
Tube 3.2" Rifle

*General drawing showing
positions from whence
specimens were taken*

Breech end



Muzzle end



TUBES.—3.2 INCH B. L. RIFLES.

No. 1689.

Marks, ³²T₁
B T₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	0.	
2,000	10,000	.000350	.000200	0.		
3,000	15,000	.000500	.000150	0.		
4,000	20,000	.000700	.000200	0.		
5,000	25,000	.000850	.000150	0.		
6,000	30,000	.001000	.000150	0.		
7,000	35,000	.001150	.000150	0.		
8,000	40,000	.001300	.000150	0.		
9,000	45,000	.001400	.000100			
9,600	48,000	.001500	.000100			Elastic limit.
9,800	49,000	.001550	.000050			
10,000	50,000	.001600	.000050	.000 00	.000100	
10,200	51,000	.002700	.001100			
10,400	52,000	.005200	.002500			
10,600	53,000	.006200	.001000			
10,800	54,000	.007200	.001000			
11,000	55,000	.008300	.001100			
11,200	56,000	.009450	.001150	.007350	.007250	
11,400	57,000	.010000	.000550			
11,600	58,000	.011000	.001000			Tensile strength.
11,800	59,000	.012250	.001250			
12,000	60,000	.013600	.001350			
12,400	62,000	.014650	.001050			
12,800	64,000	.017200	.002550			
13,200	66,000	.019800	.002600			
13,600	68,000	.022550	.002750			
14,000	70,000	.025600	.003050			
14,400	72,000	.028750	.003150			
14,800	74,000	.032550	.003800			
15,200	76,000	.036500	.003950			
15,600	78,000	.041500	.005000			
16,000	80,000	.047300	.005800			
16,400	82,000	.055500	.008200			
16,800	84,000	.067000	.011500			
17,070	85,350	.0850	.0180			
		.1300	.0450			

General summary.

Specific gravity.....	7.8615
Tensile strength per square inch of original section..... pounds..	85,350
Elastic limit per square inch of original section..... do.....	50,000
Elongation per inch after rupture..... inch..	0.2400
Elongation per inch under strain at elastic limit..... do.....	.001600
Reduction in diameter at point of rupture..... do.....	.155
Reduction in area after rupture, per centum of original section.....	51.9
Position of rupture.....	".1 from middle of stem
Character of broken surface.....	silky
Elongation of inch sections.....	".32*, ".16

No. 1690.

Marks, ³²T₁
B T₂

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.	-----	
2,000	10,000	.000400	.000200	0.	-----	
3,000	15,000	.000600	.000200	0.	-----	
4,000	20,000	.000750	.000150	0.	-----	
5,000	25,000	.000950	.000200	0.	-----	
6,000	30,000	.001100	.000150	0.	-----	
7,000	35,000	.001250	.000150	.000050	.000050	
8,000	40,000	.001350	.000100	.000050	0.	
9,000	45,000	.001550	.000200	.000050	0.	
9,600	48,000	.001750	.000200	-----	-----	Elastic limit.
9,800	49,000	.001800	.000050	-----	-----	
10,000	50,000	.002700	.001100	.001000	.000950	
10,200	51,000	.003800	.001100	-----	-----	
10,400	52,000	.005100	.001300	-----	-----	
10,600	53,000	.007100	.002000	-----	-----	
10,800	54,000	.008500	.001400	-----	-----	
11,000	55,000	.009300	.000800	.007250	.006250	
11,200	56,000	.010100	.000800	-----	-----	
11,400	57,000	.011100	.001000	-----	-----	
11,600	58,000	.012250	.001150	-----	-----	
11,800	59,000	.013500	.001250	-----	-----	
12,000	60,000	.014750	.001250	-----	-----	
12,400	62,000	.017100	.002350	-----	-----	
12,800	64,000	.019600	.002500	-----	-----	
13,200	66,000	.022500	.002900	-----	-----	
13,600	68,000	.025750	.003250	-----	-----	
14,000	70,000	.028750	.003000	-----	-----	
14,400	72,000	.032500	.003750	-----	-----	
14,800	74,000	.036550	.004050	-----	-----	
15,200	76,000	.041500	.004950	-----	-----	Tensile strength.
15,600	78,000	.048000	.006500	-----	-----	
16,000	80,000	.055250	.007250	-----	-----	
16,400	82,000	.068250	.013000	-----	-----	
16,800	84,000	.087500	.021250	-----	-----	
16,980	84,900	.1150	.0275	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	84,900
Elastic limit per square inch of original section.....	do.....	49,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do.....	.001800
Reduction in diameter at point of rupture.....	do.....	.114
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....	$\frac{3}{8}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".30*, ".10	

No. 576.

Marks, $\frac{32}{B} T_1$

Length, 4".001.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	-----	
5,000	10,000	.000200	.000100	0.	-----	
7,500	15,000	.000300	.000100	0.	-----	
-----	-----	-----	-----	.021650	.021650	Load accidentally increased, causing permanent set of.
47,200	94,400	-----	-----	-----	-----	Ultimate strength.

No. 1691.

Marks, $\frac{32}{M} T_1$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001350	.000150	0.	.....	
9,600	48,000	.001450	.000100	.....	.....	Elastic limit.
9,800	49,000	.001950	.000500	.....	.....	
10,000	50,000	.002750	.000800	.001150	.001150	Rested under initial load one hour.
10,200	51,000	.003300	.000550	.....	.....	
10,400	52,000	.003850	.000550	.....	.....	
10,600	53,000	.004900	.001050	.....	.....	
10,800	54,000	.006450	.001550	.....	.....	
11,000	55,000	.008000	.001550	.006100	.004950	
11,200	56,000	.008750	.001750	.....	.....	
11,400	57,000	.009450	.000700	.....	.....	
11,600	58,000	.010500	.001050	.....	.....	
11,800	59,000	.012100	.001600	.....	.....	
12,000	60,000	.013400	.001300	.....	.....	
12,400	62,000	.015750	.002350	.....	.....	
12,800	64,000	.018300	.002550	.....	.....	
13,200	66,000	.021000	.002700	.....	.....	
13,600	68,000	.023600	.002600	.....	.....	
14,000	70,000	.026500	.002900	.....	.....	
14,400	72,000	.030600	.004100	.....	.....	
14,800	74,000	.034550	.003950	.....	.....	
15,200	76,000	.038650	.004100	.....	.....	
15,600	78,000	.044500	.005850	.....	.....	
16,000	80,000	.051000	.006500	.....	.....	
16,400	82,000	.061000	.010000	.....	.....	
16,800	84,000	.074500	.013500	.....	.....	
17,040	85,200	.1035	.0290	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	85,200
Elastic limit per square inch of original section	do	48,000
Elongation per inch after rupture.....	inch..	0.1500
Elongation per inch under strain at elastic limit.....	do	.001450
Reduction in diameter at point of rupture.....	do	.095
Reduction in area after rupture, per centum of original section.....		34.0
Position of rupture		$\frac{1}{2}$ inch from neck
Character of broken surface	granular, dull spot at circumference	
Elongation of inch sections		".24*, ".06

No. 1692.

Marks, $\frac{32}{M} T_1$ Diameter, $\frac{1}{2}$ inch.

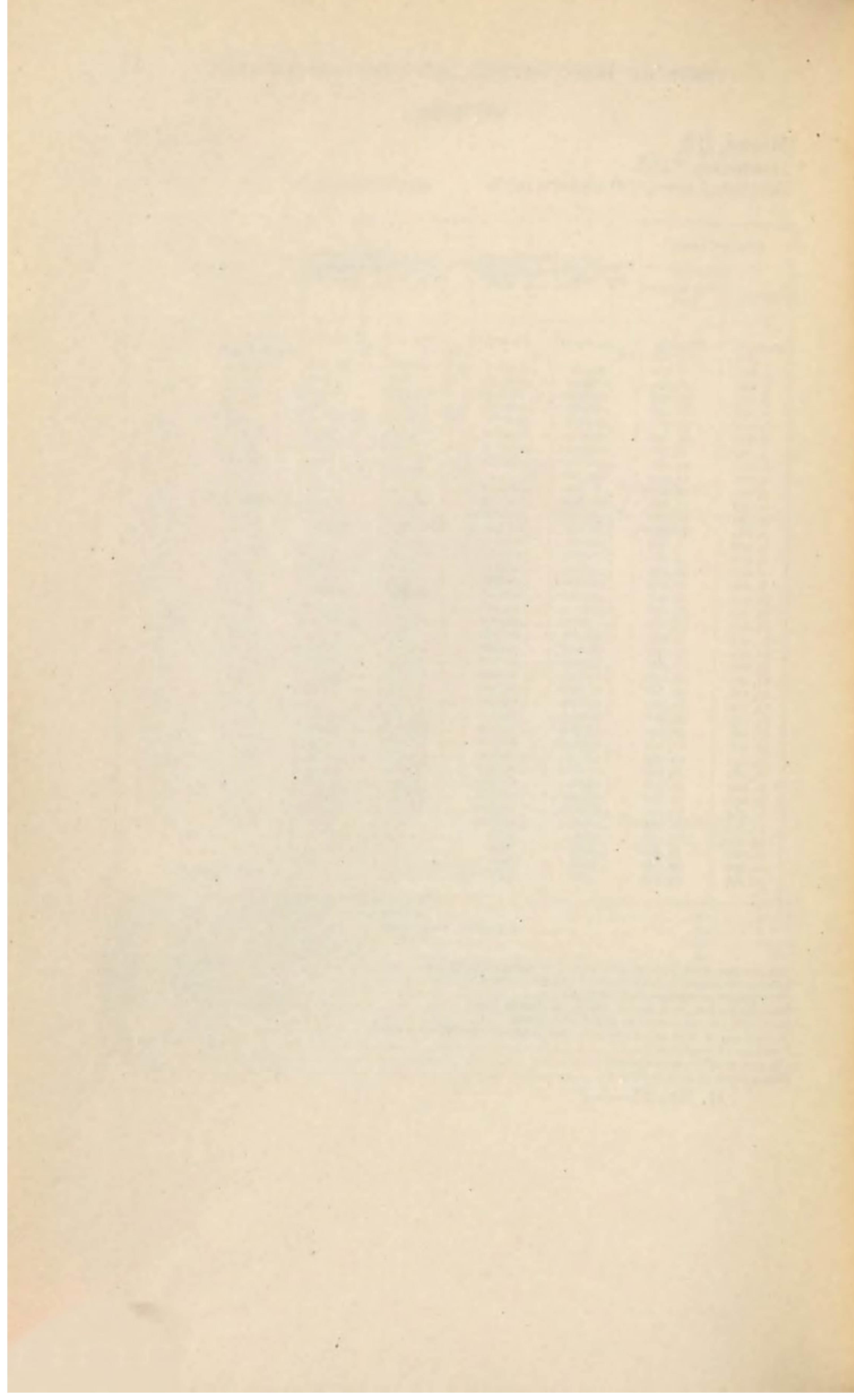
Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000250	.000150	0.	-----	
3,000	15,000	.000400	.000150	0.	-----	
4,000	20,000	.000550	.000150	0.	-----	
5,000	25,000	.000700	.000150	0.	-----	
6,000	30,000	.000850	.000150	0.	-----	
7,000	35,000	.001000	.000150	0.	-----	
8,000	40,000	.001150	.000150	0.	-----	
8,200	41,000	.001150	0.	-----	-----	
8,400	42,000	.001200	.000050	-----	-----	
8,600	43,000	.001300	.000100	-----	-----	Elastic limit.
8,800	44,000	.002500	.001200	-----	-----	
9,000	45,000	.009500	.007000	.007750	.007750	
9,200	46,000	.010150	.000650	-----	-----	
9,400	47,000	.010400	.000250	-----	-----	
9,600	48,000	.011300	.000900	-----	-----	
9,800	49,000	.012550	.001250	-----	-----	
10,000	50,000	.013750	.001200	.011750	.004000	
10,200	51,000	.015050	.001300	-----	-----	
10,400	52,000	.016000	.000950	-----	-----	
10,600	53,000	.017200	.001200	-----	-----	
10,800	54,000	.018500	.001300	-----	-----	
11,000	55,000	.019600	.001100	-----	-----	
11,200	56,000	.021000	.001400	-----	-----	
11,400	57,000	.022550	.001550	-----	-----	
11,600	58,000	.024050	.001500	-----	-----	
11,800	59,000	.025600	.001550	-----	-----	
12,000	60,000	.027150	.001550	-----	-----	
12,400	62,000	.030350	.003200	-----	-----	
12,800	64,000	.034500	.004150	-----	-----	
13,200	66,000	.038500	.003900	-----	-----	
13,600	68,000	.043500	.005100	-----	-----	
14,000	70,000	.050000	.006500	-----	-----	
14,400	72,000	.058500	.008500	-----	-----	
14,800	74,000	.068000	.009500	-----	-----	
15,200	76,000	.0800	.0120	-----	-----	
15,600	78,000	.1050	.0250	-----	-----	
16,000	80,000	.1500	.0450	-----	-----	
16,020	80,100	.1750	.0250	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	80,100
Elastic limit per square inch of original section	do	43,000
Elongation per inch after rupture	inch..	0.2900
Elongation per inch under strain at elastic limit	do	.001300
Reduction in diameter at point of rupture	do	.145
Reduction in area after rupture, per centum of original section		49.1
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections	.38*, .20	

H. Ex. 31—2



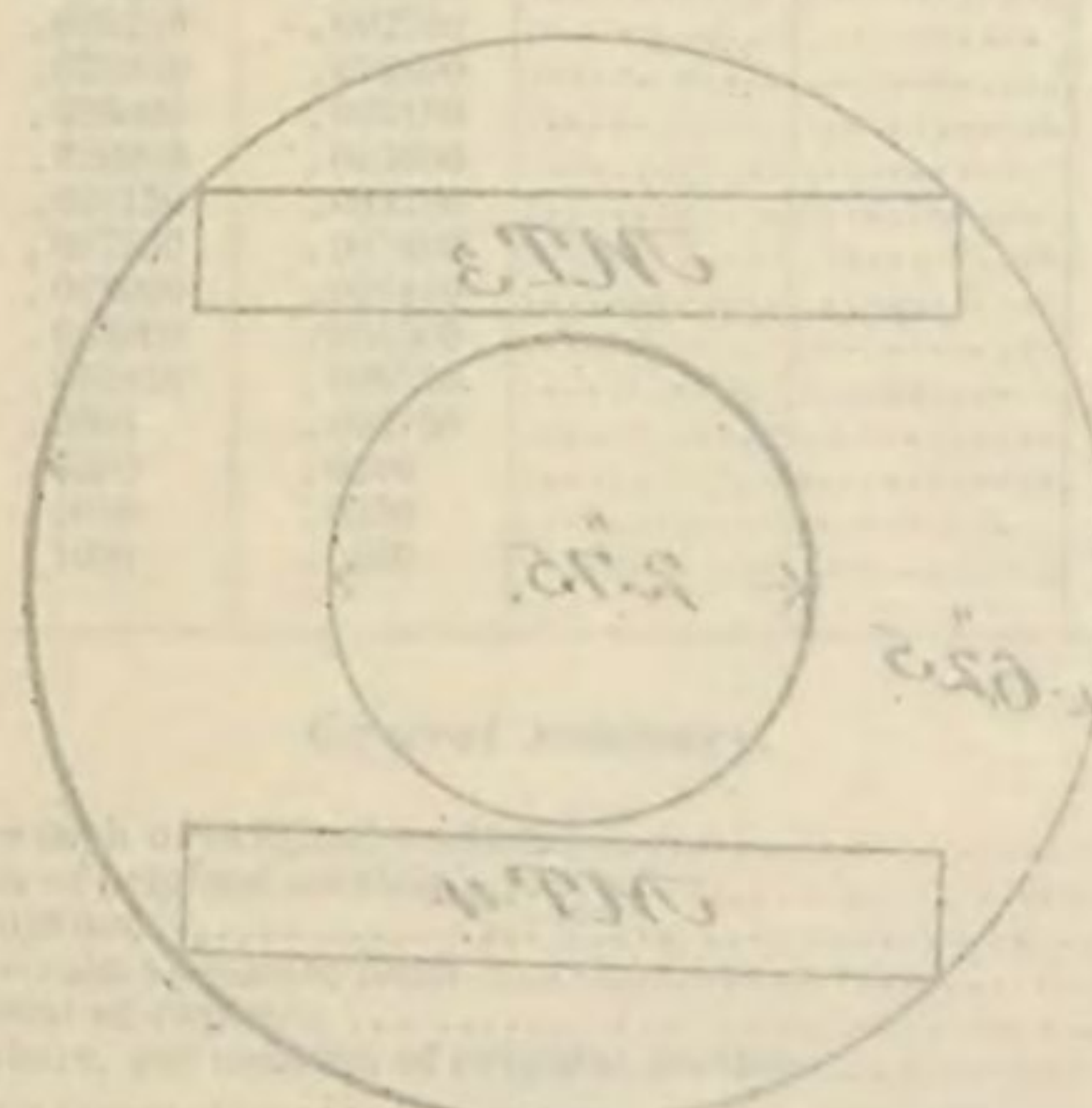
No. 2274.

Welds, etc.

Diameter, 2.00.

Sectional area, 20 square inch.

Applied loads		Elongation in 2 in.	Elongation in 4 in.	Elongation in 8 in.	Elongation in 16 in.	Remarks
Total	Per square inch					
1000	50.00	0.02	0.04	0.08	0.16	
2000	100.00	0.04	0.08	0.16	0.32	
3000	150.00	0.06	0.12	0.24	0.48	
4000	200.00	0.08	0.16	0.32	0.64	
5000	250.00	0.10	0.20	0.40	0.80	
6000	300.00	0.12	0.24	0.48	0.96	
7000	350.00	0.14	0.28	0.56	1.12	
8000	400.00	0.16	0.32	0.64	1.28	
9000	450.00	0.18	0.36	0.72	1.44	
10000	500.00	0.20	0.40	0.80	1.60	
11000	550.00	0.22	0.44	0.88	1.76	
12000	600.00	0.24	0.48	0.96	1.92	
13000	650.00	0.26	0.52	1.04	2.08	
14000	700.00	0.28	0.56	1.12	2.24	
15000	750.00	0.30	0.60	1.20	2.40	
16000	800.00	0.32	0.64	1.28	2.56	
17000	850.00	0.34	0.68	1.36	2.72	
18000	900.00	0.36	0.72	1.44	2.88	
19000	950.00	0.38	0.76	1.52	3.04	
20000	1000.00	0.40	0.80	1.60	3.20	
21000	1050.00	0.42	0.84	1.68	3.36	
22000	1100.00	0.44	0.88	1.76	3.52	
23000	1150.00	0.46	0.92	1.84	3.68	
24000	1200.00	0.48	0.96	1.92	3.84	
25000	1250.00	0.50	1.00	2.00	4.00	
26000	1300.00	0.52	1.04	2.08	4.16	
27000	1350.00	0.54	1.08	2.16	4.32	
28000	1400.00	0.56	1.12	2.24	4.48	
29000	1450.00	0.58	1.16	2.32	4.64	
30000	1500.00	0.60	1.20	2.40	4.80	
31000	1550.00	0.62	1.24	2.48	4.96	
32000	1600.00	0.64	1.28	2.56	5.12	
33000	1650.00	0.66	1.32	2.64	5.28	
34000	1700.00	0.68	1.36	2.72	5.44	
35000	1750.00	0.70	1.40	2.80	5.60	
36000	1800.00	0.72	1.44	2.88	5.76	
37000	1850.00	0.74	1.48	2.96	5.92	
38000	1900.00	0.76	1.52	3.04	6.08	
39000	1950.00	0.78	1.56	3.12	6.24	
40000	2000.00	0.80	1.60	3.20	6.40	
41000	2050.00	0.82	1.64	3.28	6.56	
42000	2100.00	0.84	1.68	3.36	6.72	
43000	2150.00	0.86	1.72	3.44	6.88	
44000	2200.00	0.88	1.76	3.52	7.04	
45000	2250.00	0.90	1.80	3.60	7.20	
46000	2300.00	0.92	1.84	3.68	7.36	
47000	2350.00	0.94	1.88	3.76	7.52	
48000	2400.00	0.96	1.92	3.84	7.68	
49000	2450.00	0.98	1.96	3.92	7.84	
50000	2500.00	1.00	2.00	4.00	8.00	

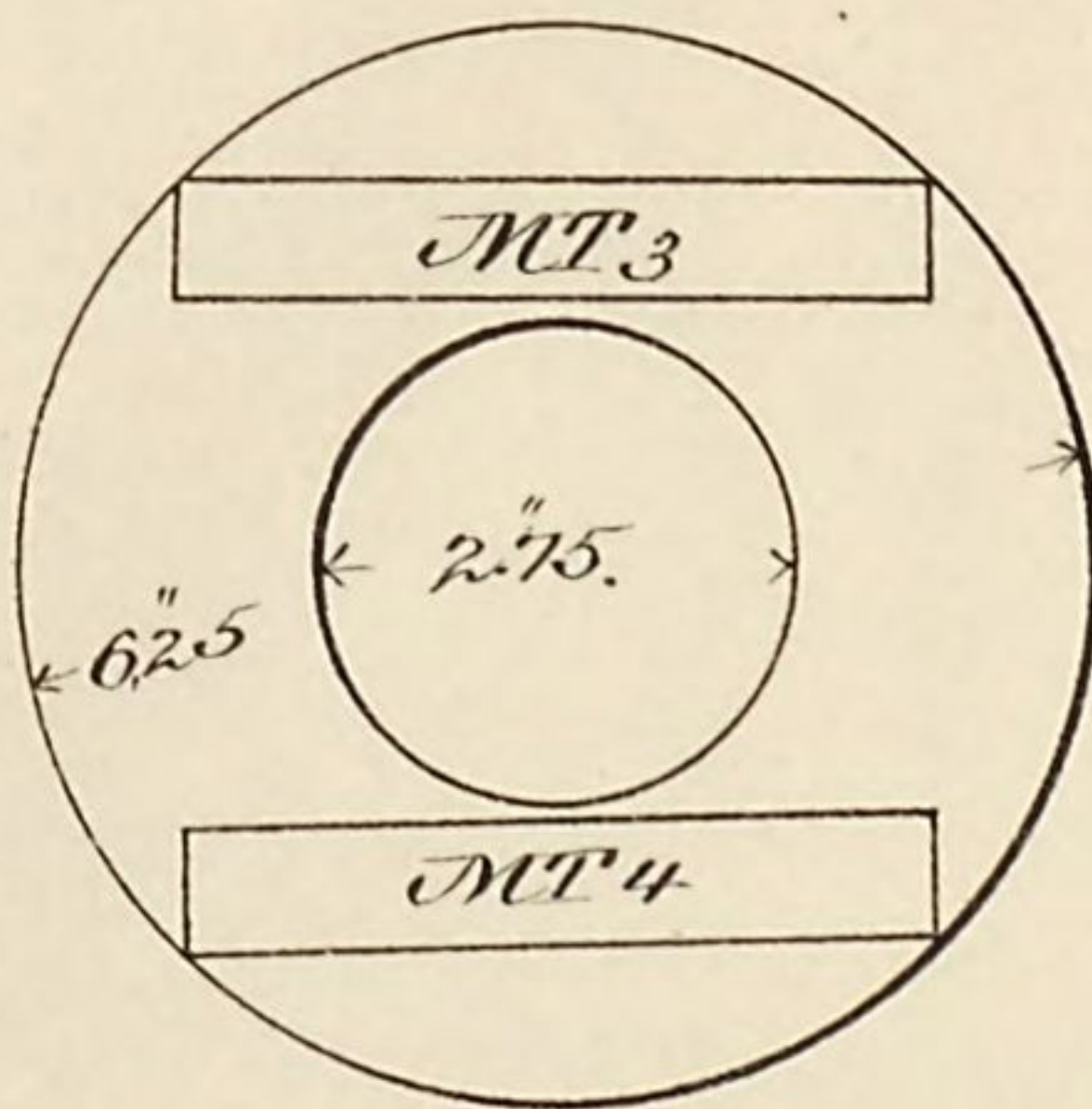


H Ex 3 \ 40 2

Tube No. 1 3 1/2" Rifle.

Additional specimens.

Muzzle end



H Ex 3 / 49 2

No. 2274.

Marks, $\frac{32}{M} T_1$ Diameter, $\frac{1}{4}$.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
8,200	41,000	.001300	.000050	.....	.....	
8,400	42,000	.001350	.000050	.....	.....	
8,600	43,000	.001400	.000050			Elastic limit.
8,800	44,000	.001900	.000500	.....	.....	
9,000	45,000	.003000	.001100	.....	.....	
9,200	46,000	.005150	.002150	.....	.....	
9,400	47,000	.008100	.002950	.....	.....	
9,600	48,000	.009100	.001000	.....	.....	
9,800	49,000	.009800	.000700	.....	.....	
10,000	50,000	.011000	.001200	.....	.....	
10,400	52,000	.013100	.002100	.....	.....	
10,800	54,000	.015500	.002400	.....	.....	
11,200	56,000	.017550	.002050	.....	.....	
11,600	58,000	.020250	.002700	.....	.....	
12,000	60,000	.022850	.002600	.....	.....	
12,400	62,000	.026000	.003150	.....	.....	
12,800	64,000	.029000	.003000	.....	.....	
13,200	66,000	.032150	.003150	.....	.....	
13,600	68,000	.037550	.005400	.....	.....	
14,000	70,000	.043000	.005450	.....	.....	
14,400	72,000	.048500	.005500	.....	.....	
14,800	74,000	.055250	.006750	.....	.....	
15,200	76,000	.0600	.004750	.....	.....	
15,600	78,000	.0800	.0200	.....	.....	
16,000	80,000	.1050	.0250	.....	.....	
16,210	81,050	.1600	.0350			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	81,050
Elastic limit per square inch of original section	do.....	43,000
Elongation per inch after rupture	inch..	0.2500
Elongation per inch under strain at elastic limit	do.....	.001400
Reduction in diameter at point of rupture	do.....	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture		.6 from neck
Character of broken surface	granular, dull spot at circumference	
Elongation of inch sections		.31*, .19

No. 2275.

Marks, $\frac{32}{M} T_1$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000400	.000200	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001150	.000150	0.	.....	
8,200	41,000	.001200	.000150	.....	.....	
8,400	42,000	.001250	.000050	.....	.....	
8,600	43,000	.001250	0.	.....	.....	
8,800	44,000	.001300	.000050	.....	.....	
9,000	45,000	.001350	.000050	.....	.....	
9,200	46,000	.001400	.000050	.....	.....	
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001550	.000100			Elastic limit.
9,800	49,000	.001900	.000350	.....	.....	
10,000	50,000	.003700	.001800	.....	.....	
10,400	52,000	.005650	.001950	.....	.....	
10,800	54,000	.009000	.003350	.....	.....	
11,200	56,000	.011350	.002350	.....	.....	
11,600	58,000	.013500	.002150	.....	.....	
12,000	60,000	.016050	.002550	.....	.....	
12,400	62,000	.018500	.002450	.....	.....	
12,800	64,000	.021200	.002700	.....	.....	
13,200	66,000	.024350	.003150	.....	.....	
13,600	68,000	.027150	.002800	.....	.....	
14,000	70,000	.031250	.004100	.....	.....	
14,400	72,000	.035250	.004000	.....	.....	
14,800	74,000	.039750	.004500	.....	.....	
15,200	76,000	.045250	.005500	.....	.....	
15,600	78,000	.052250	.007000	.....	.....	
16,000	80,000	.0600	.007750	.....	.....	
16,400	82,000	.0800	.0200	.....	.....	
16,800	84,000	.1100	.0300			Tensile strength.
16,880	84,400	.1400	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	84,400
Elastic limit per square inch of original section	do....	48,000
Elongation per inch after rupture	inch..	.1500
Elongation per inch under strain at elastic limit	do....	.001550
Reduction in diameter at point of rupture	do....	.065
Reduction in area after rupture, per centum of original section		23.9
Position of rupture		".65 from neck
Character of broken surface	granular, dull flaky spot near the circumference	
Elongation of inch sections		".18*, ".12

NEW TUBE No. 1.

No. 2590.

Marks, $\frac{32}{B} T_1$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000350	.000250	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001350	.000250	.....	.....	
9,000	45,000	.001500	.000150	.....	.....	
10,000	50,000	.001650	.000150			Elastic limit.
10,200	51,000	.001650	0.	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001800	.000100	.....	.....	
10,800	54,000	.001850	.000050	.....	.....	
11,000	55,000	.001900	.000050	.....	.....	
11,200	56,000	.002000	.000100	.....	.....	
11,400	57,000	.002250	.000250	.....	.....	
11,600	58,000	.003000	.000750	.....	.....	
11,800	59,000	.003300	.000300	.....	.....	
12,000	60,000	.003800	.000500	.....	.....	
12,400	62,000	.006250	.002450	.....	.....	
12,800	64,000	.010000	.003750	.....	.....	
13,200	66,000	.012000	.002000	.....	.....	
13,600	68,000	.014000	.002000	.....	.....	
14,000	70,000	.016500	.002500	.....	.....	
14,400	72,000	.019050	.002550	.....	.....	
14,800	74,000	.021550	.002500	.....	.....	
15,200	76,000	.024250	.002700	.....	.....	
15,600	78,000	.027500	.003250	.....	.....	
16,000	80,000	.031250	.003750	.....	.....	
16,400	82,000	.035600	.004350	.....	.....	
16,800	84,000	.039500	.003900	.....	.....	
17,200	86,000	.045250	.005750	.....	.....	
17,600	88,000	.0500	.004750	.....	.....	
18,000	90,000	.0550	.0050	.....	.....	
18,400	92,000	.0800	.0250	.....	.....	
18,680	93,400	.1300	.0500			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	93,400
Elastic limit per square inch of original section	do....	56,000
Elongation per inch after rupture	inch..	.1850
Elongation per inch under strain at elastic limit	do....	.002000
Reduction in diameter at point of rupture	do....	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture	$\frac{1}{2}$ " from neck	
Character of broken surface	silky, flaky	
Elongation of inch sections	".30*, ".07	

No. 2591.

Marks, $\frac{32}{B} T_1$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001350	.000200	0.	.....	
9,000	45,000	.001500	.000150	.....	.....	
10,000	50,000	.001650	.000150			Elastic limit.
10,200	51,000	.001650	0.	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001800	.000050	.....	.....	
11,000	55,000	.001900	.000100	.....	.....	
11,200	56,000	.002250	.000350	.....	.....	
11,400	57,000	.003000	.000700	.....	.....	
11,600	58,000	.003900	.000900	.....	.....	
11,800	59,000	.004350	.000450	.....	.....	
12,000	60,000	.005650	.001300	.....	.....	
12,400	62,000	.008000	.002350	.....	.....	
12,800	64,000	.010500	.002500	.....	.....	
13,200	66,000	.012100	.001600	.....	.....	
13,600	68,000	.014050	.001950	.....	.....	
14,000	70,000	.016000	.001950	.....	.....	
14,400	72,000	.018500	.002500	.....	.....	
14,800	74,060	.020600	.002100	.....	.....	
15,200	76,000	.023000	.002400	.....	.....	
15,600	78,000	.026050	.003050	.....	.....	
16,000	80,000	.029550	.003500	.....	.....	
16,400	82,000	.032750	.003200	.....	.....	
16,800	84,000	.036000	.003250	.....	.....	
17,200	86,000	.040500	.004500	.....	.....	
17,600	88,000	.045750	.005250	.....	.....	
18,000	90,000	.0500	.004250	.....	.....	
18,400	92,000	.0600	.0100	.....	.....	
18,800	94,000	.0750	.0150	.....	.....	
19,200	96,000	.1050	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	96,000
Elastic limit per square inch of original section.....	do....	55,000
Elongation per inch after rupture.....	inch..	0.2050
Elongation per inch under strain at elastic limit.....	do....	.001900
Reduction in diameter at point of rupture.....	do....	.105
Reduction in area after rupture, per centum of original section.....	t.....	37.1
Position of rupture.....	.....	".75 from neck
Character of broken surface.....	.....	silky, 80 per centum; granular, 20 per centum
Elongation of inch sections.....	.....	".13, ".28*

No. 671.

Marks, ³²T₁
B T₆
Length, 4".
Diameter, ".798.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000300	.000200	0.	.....	
7,500	15,000	.000433	.000133	0.	.....	
10,000	20,000	.000600	.000167	0.	.....	
12,500	25,000	.000767	.000167	0.	.....	
15,000	30,000	.000967	.000200	0.	.....	
17,500	35,000	.001100	.000133	.....	.....	
20,000	40,000	.001300	.000200	.....	.....	
20,500	41,000	.001367	.000067	.....	.....	
21,000	42,000	.001400	.000033	.....	.....	
21,500	43,000	.001467	.000067	.....	.....	
22,000	44,000	.001500	.000033	.....	.....	
22,500	45,000	.001533	.000033	.....	.....	
23,000	46,000	.001600	.000067	.....	.....	
23,500	47,000	.001667	.000067			Elastic limit.
24,000	48,000	.001733	.000066	.....	.....	
24,500	49,000	.001867	.000134	.....	.....	
25,000	50,000	.002133	.000266	.....	.....	
25,500	51,000	.002900	.000767	.....	.....	
26,000	52,000	.003400	.000500			Ultimate strength.
26,500	53,000	.004200	.000800	.....	.....	
27,000	54,000	.005200	.001000	.....	.....	
47,100	94,200	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 48,000
Compression per inch under stress of elastic limit.....inch.. 001733
Ultimate strength per square inch of original section.....pounds.. 94,200
Manner of failuretriple flexure

No. 2592.

Marks, ³²T₁
M T₅

Diameter, ".505.

Sectional area, ".20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001100	.000200	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001400	.000150	.....	.....	
10,000	50,000	.001600	.000200			Elastic limit.
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001850	.000100	.....	.....	
11,000	55,000	.002350	.000500	.....	.....	
11,200	56,000	.003200	.000850	.....	.....	
11,400	57,000	.004050	.000850	.....	.....	
11,600	58,000	.006000	.001950	.....	.....	
11,800	59,000	.007600	.001600	.....	.....	
12,000	60,000	.009000	.001400			Tensile strength.
12,400	62,000	.010750	.001750	.....	.....	
12,800	64,000	.012750	.002000	.....	.....	
13,200	66,000	.014800	.002050	.....	.....	
13,600	68,000	.017000	.002200	.....	.....	
14,000	70,000	.019050	.002050	.....	.....	
14,400	72,000	.021250	.002200	.....	.....	
14,800	74,000	.024000	.002750	.....	.....	
15,200	76,000	.027000	.003000	.....	.....	
15,600	78,000	.029800	.002800	.....	.....	
16,000	80,000	.033950	.004150	.....	.....	
16,400	82,000	.038500	.004550	.....	.....	
16,800	84,000	.043000	.004500	.....	.....	
17,200	86,000	.046550	.003550	.....	.....	
17,600	88,000	.050000	.003450	.....	.....	
18,000	90,000	.0550	.0050	.....	.....	
18,400	92,000	.0800	.0250	.....	.....	
18,800	94,000	.1050	.0250	.....	.....	
18,920	94,600	.1150	.0100	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	94,600
Elastic limit per square inch of original section	do....	54,000
Elongation per inch after rupture	inch..	.2650
Elongation per inch under strain at elastic limit	do....	.001850
Reduction in diameter at point of rupture	do....	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	".65 from neck	
Character of broken surface	silky, flaky	
Elongation of inch sections	".30", ".23	

No. 2593.

Marks, $\frac{32}{M} T_1$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial l
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000200	.000100	0.	-----	
3,000	15,000	.000350	.000150	0.	-----	
4,000	20,000	.000650	.000250	0.	-----	
5,000	25,000	.000800	.000200	0.	-----	
6,000	30,000	.000950	.000150	0.	-----	
7,000	35,000	.001100	.000150	0.	-----	
8,000	40,000	.001300	.000200	0.	-----	
9,000	45,000	.001500	.000200	-----	-----	
10,000	50,000	.001650	.000150	-----	-----	Elastic limit.
10,200	51,000	.001650	0.	-----	-----	
10,400	52,000	.001700	.000050	-----	-----	
10,600	53,000	.001800	.000100	-----	-----	
10,800	54,000	.002000	.000200	-----	-----	
11,000	55,000	.002200	.000200	-----	-----	
11,200	56,000	.002550	.000350	-----	-----	
11,400	57,000	.004250	.001700	-----	-----	
11,600	58,000	.005600	.001350	-----	-----	
11,800	59,000	.007400	.001800	-----	-----	
12,000	60,000	.008600	.001200	-----	-----	Tensile strength.
12,400	62,000	.011000	.002400	-----	-----	
12,800	64,000	.013500	.002500	-----	-----	
13,200	66,000	.015500	.002000	-----	-----	
13,600	68,000	.018250	.002750	-----	-----	
14,000	70,000	.020750	.002500	-----	-----	
14,400	72,000	.023750	.003000	-----	-----	
14,800	74,000	.026800	.003050	-----	-----	
15,200	76,000	.029000	.002200	-----	-----	
15,600	78,000	.032500	.003500	-----	-----	
16,000	80,000	.036750	.004250	-----	-----	
16,400	82,000	.041500	.004750	-----	-----	
16,800	84,000	.047500	.006000	-----	-----	
17,200	86,000	.052500	.005000	-----	-----	
17,600	88,000	.0600	.0075	-----	-----	
18,000	90,000	.0850	.0250	-----	-----	
18,380	91,900	.1350	.0500	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	91,900
Elastic limit per square inch of original section.....	do....	53,000
Elongation per inch after rupture.....	inch..	0.2350
Elongation per inch under strain at elastic limit.....	do....	.00180
Reduction in diameter at point of rupture.....	do....	.120
Reduction in area after rupture, per centum of original section.....		43.5
Position of rupture.....	".55 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".14, ".333	

No. 2196.

Marks, $\frac{32}{B} T_2$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000200	.000100	0.	-----	
3,000	15,000	.000350	.000150	0.	-----	
4,000	20,000	.000550	.000200	0.	-----	
5,000	25,000	.000700	.000150	0.	-----	
6,000	30,000	.000850	.000150	0.	-----	
7,000	35,000	.001050	.000200	0.	-----	
8,000	40,000	.001250	.000200	0.	-----	
9,000	45,000	.001450	.000200	0.	-----	
9,600	48,000	.001600	.000150	-----	-----	Elastic limit.
9,800	49,000	.001650	.000050	-----	-----	
10,000	50,000	.003000	.001350	-----	-----	
10,200	51,000	.004000	.001000	-----	-----	
10,400	52,000	.005000	.001000	-----	-----	
10,600	53,000	.006000	.001000	-----	-----	
10,800	54,000	.007000	.001000	-----	-----	
11,000	55,000	.008050	.001050	-----	-----	
11,200	56,000	.009000	.000950	-----	-----	
11,400	57,000	.010000	.001000	-----	-----	
11,600	58,000	.010850	.000850	-----	-----	
11,800	59,000	.011950	.001100	-----	-----	
12,000	60,000	.013150	.001200	-----	-----	
12,400	62,000	.015600	.002450	-----	-----	
12,800	64,000	.017750	.002150	-----	-----	
13,200	66,000	.020000	.002250	-----	-----	
13,600	68,000	.022750	.002750	-----	-----	
14,000	70,000	.025200	.002450	-----	-----	
14,400	72,000	.028400	.003200	-----	-----	
14,800	74,000	.031700	.003300	-----	-----	
15,200	76,000	.036050	.004350	-----	-----	
15,600	78,000	.040600	.004550	-----	-----	
16,000	80,000	.046000	.005400	-----	-----	
16,400	82,000	.052500	.006500	-----	-----	
16,800	84,000	.0600	.0075	-----	-----	
17,200	86,000	.0750	.0150	-----	-----	
17,600	88,000	.1000	.0250	-----	-----	
17,700	88,500	.1500	.0500	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	88,500
Elastic limit per square inch of original section	do ..	49,000
Elongation per inch after rupture	inch..	.2450
Elongation per inch under strain at elastic limit	do ..	.001650
Reduction in diameter at point of rupture	do ..	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	" .75 from neck	
Character of broken surface	silky, slightly granular	
Elongation of inch sections	" .34*, ".15	

No. 2197.

Marks, $\frac{32}{B} \frac{T}{T^2}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	— .000050	— .000050	
2,000	10,000	.000200	.000100	— .000050	0.	
3,000	15,000	.000350	.000150	— .000050	0.	
4,000	20,000	.000550	.000200	— .500050	0.	
5,000	25,000	.000650	.000100	— .000050	0.	
6,000	30,000	.000850	.000200	— .000050	0.	
7,000	35,000	.000950	.000100	— .000050	0.	
8,000	40,000	.001150	.000200	— .000050	0.	
8,600	43,000	.001200	.000050			Elastic limit.
8,800	44,000	.001250	.000050	.....	.....	
9,000	45,000	.001550	.000300	.....	.....	
9,200	46,000	.002200	.000650	.....	.....	
9,400	47,000	.003250	.001050	.....	.....	
9,600	48,000	.004600	.001350	.....	.....	
9,800	49,000	.005350	.000750	.....	.....	
10,000	50,000	.006600	.001250	.....	.....	
10,200	51,000	.007250	.000650	.....	.....	
10,400	52,000	.008250	.001000			Rested under load one hour.
10,600	53,000	.090250	.001000	.....	.....	
10,800	54,000	.010500	.001250	.....	.....	
11,000	55,000	.011500	.001000	.....	.....	
11,200	56,000	.012500	.001000	.....	.....	
11,400	57,000	.013000	.000500	.....	.....	
11,600	58,000	.013900	.000900	.....	.....	
11,800	59,000	.015100	.001200	.....	.....	
12,000	60,000	.016700	.001600	.....	.....	
12,400	62,000	.019000	.002300			Tensile strength.
12,800	64,000	.021150	.002150	.....	.....	
13,200	66,000	.024250	.003100	.....	.....	
13,600	68,000	.027250	.003000	.....	.....	
14,000	70,000	.030000	.002750	.....	.....	
14,400	72,000	.034000	.004000	.....	.....	
14,800	74,000	.039000	.005000	.....	.....	
15,200	76,000	.043000	.004000	.....	.....	
15,600	78,000	.049500	.006500	.....	.....	
16,000	80,000	.052250	.002750	.....	.....	
16,400	82,000	.0650	.012750	.....	.....	
16,800	84,000	.0800	.0150	.....	.....	
17,200	86,000	.1100	.0300	.....	.....	
17,250	86,250	.1500	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	86,250
Elastic limit per square inch of original section	do....	44,000
Elongation per inch after rupture	inch..	.2500
Elongation per inch under strain at elastic limit	do....	.001250
Reduction in diameter at point of rupture	do....	.135
Reduction in area after rupture, per centum of original section		46.2
Position of rupture	1".00 from neck	
Character of broken surface	silky, slightly granular	
Elongation of inch sections	".35*, ".15	

No. 614.

Marks, $\frac{32}{B} T_2$

Length, 4".

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000300	.000200	0.	.....	
7,500	15,000	.000500	.000200	0.	.....	
10,000	20,000	.000650	.000150	0.	.....	
12,500	25,000	.000800	.000150	0.	.....	
15,000	30,000	.001000	.000200	0.	.....	
17,500	35,000	.001200	.000200	0.	.....	
20,000	40,000	.001400	.000200	.000050	.000050	
20,500	41,000	.001450	.000050	.....	.....	
21,000	42,000	.001500	.000050	.....	.....	
21,500	43,000	.001500	0.	.....	.....	
22,000	44,000	.001550	.000050	.....	.....	
22,500	45,000	.001600	.000050	.000200	.000150	Elastic limit.
23,000	46,000	.001750	.000150	.....	.....	
23,500	47,000	.003000	.001250	.....	.....	
24,000	48,000	.007300	.004300	.006750	.006550	
24,500	49,000	.009600	.002300	.007800	.001050	
25,000	50,900	.010850	.001250	.009000	.001200	Ultimate strength.
44,800	89,600	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 45,000
 Compression per inch under stress at elastic limit.....inch.. .001600
 Ultimate strength per square inch of original section.....pounds.. 89,600
 Manner of failure.....triple flexure.

No. 2198.

Marks, $\frac{32}{M. T_1}$ T₂

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000700	.000200	0.	.....	
5,000	25,000	.000900	.000200	0.	.....	
6,000	30,000	.001050	.000150	0.	.....	
7,000	35,000	.001250	.000200	0.	.....	
8,000	40,000	.001400	.000150	0.	.....	
9,000	45,000	.001550	.000150	0.	.....	
9,200	46,000	.001550	0.	.....	.....	
9,400	47,000	.001650	.000100	.....	.....	
9,600	48,000	.001700	.000050			Elastic limit.
9,800	49,000	.006500	.004800	.....	.....	
10,000	50,000	.007150	.000650	.....	.....	
10,200	51,000	.007900	.000750	.....	.....	
10,400	52,000	.008900	.001000	.....	.....	
10,600	53,000	.009900	.001000	.....	.....	
10,800	54,000	.011000	.001100	.....	.....	
11,000	55,000	.011900	.000900	.....	.....	
11,200	56,000	.012900	.001000	.....	.....	
11,400	57,000	.013900	.001000	.....	.....	
11,600	58,000	.015000	.001100	.....	.....	
11,800	59,000	.016000	.001000	.....	.....	
12,000	60,000	.016800	.000800	.....	.....	
12,400	62,000	.019800	.003000	.....	.....	
12,800	64,000	.022750	.002950	.....	.....	
13,200	66,000	.025100	.002350	.....	.....	
13,600	68,000	.028200	.003100	.....	.....	
14,000	70,000	.031750	.003550	.....	.....	
14,400	72,000	.035750	.004000	.....	.....	
14,800	74,000	.040600	.004850	.....	.....	
15,200	76,000	.045650	.005050	.....	.....	
15,600	78,000	.052250	.006600	.....	.....	
16,000	80,000	.0600	.007750	.....	.....	
16,400	82,000	.0750	.0150	.....	.....	
16,800	84,000	.0950	.0200	.....	.....	
17,070	85,350	.1500	.0550			Tensile strength.

General summary.

Tensile strength	pounds..	85,350
Elastic limit per square inch of original section.....	do....	48,000
Elongation per inch after rupture	inch..	.2400
Elongation per inch under strain at elastic limit	do....	.001700
Reduction of diameter at point of rupture	do....	.135
Reduction in area after rupture, per centum of original section .....	.....	46.2
Position of rupture .....	.....	".90 from neck
Character of broken surface.....	.....	silky, trace of granulation
Elongation of inch sections.....	.....	".14, ".34*

No. 2199.

Marks, $\frac{32}{M} T_2$ Diameter, $\frac{17}{100}$.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001100	.000200	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001500	.000250	0.	.....	
9,200	46,000	.001550*	.000050	.....	.....	
9,400	47,000	.001600	.000050	.....	.....	
9,600	48,000	.001700	.000100			Elastic limit.
9,800	49,000	.002700	.001000	.....	.....	
10,000	50,000	.004300	.001600	.....	.....	
10,200	51,000	.005850	.001550	.....	.....	
10,400	52,000	.007550	.001700	.....	.....	
10,600	53,000	.008500	.000950	.....	.....	
10,800	54,000	.009500	.001000	.....	.....	
11,000	55,000	.010500	.001000	.....	.....	
11,200	56,000	.011500	.001000	.....	.....	
11,400	57,000	.012300	.000800	.....	.....	
11,600	58,000	.013300	.001000	.....	.....	
11,800	59,000	.014900	.001600	.....	.....	
12,000	60,000	.016000	.001100	.....	.....	
12,400	62,000	.018600	.002600	.....	.....	
12,800	64,000	.021000	.002400	.....	.....	
13,200	66,000	.024000	.003000	.....	.....	
13,600	68,000	.026500	.002500	.....	.....	
14,000	70,000	.029700	.003200	.....	.....	
14,400	72,000	.033000	.003300	.....	.....	
14,800	74,000	.037500	.004500	.....	.....	
15,200	76,000	.041750	.004250	.....	.....	
15,600	78,000	.047850	.006100	.....	.....	
16,000	80,000	.052500	.004650	.....	.....	
16,400	82,000	.0600	.0075	.....	.....	
16,800	84,000	.0800	.0200	.....	.....	
17,200	86,000	.1100	.0300	.....	.....	
17,320	86,600	.1450	.0350			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	86,600
Elastic limit per square inch of original section	do....	48,000
Elongation per inch after rupture	inch..	.2500
Elongation per inch under strain at elastic limit	do....	.001700
Reduction in diameter at point of rupture	do....	.135
Reduction in area after rupture, per centum of original section		46.2
Position of rupture	" .40 from neck	
Character of broken surface	silky	
Elongation of inch sections	" .33*, ".17	

No. 1651.

Marks, $\frac{32}{B} \frac{T_3}{T_1}$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000300	.000150	0.	-----	
3,000	15,000	.000450	.000150	0.	-----	
4,000	20,000	.000600	.000150	0.	-----	
5,000	25,000	.000750	.000150	0.	-----	
6,000	30,000	.000900	.000150	0.	-----	
7,000	35,000	.001050	.000150	0.	-----	
8,000	40,000	.001200	.000150	0.	-----	
9,000	45,000	.001350	.000150	0.	-----	
10,000	50,000	.001500	.000150	0.	-----	
10,200	51,000	.001550	.000050	-----	-----	
10,400	52,000	.001600	.000050	-----	-----	
10,600	53,000	.001650	.000050	-----	-----	
10,800	54,000	.001650	0.	-----	-----	
11,000	55,000	.001700	.000050	0.	-----	
11,200	56,000	.001700	0.	-----	-----	
11,400	57,000	.001750	.000050	-----	-----	
11,600	58,000	.001800	.000050	-----	-----	Elastic limit.
11,800	59,000	.002500	.000700	-----	-----	
12,000	60,000	.003050	.000550	.001550	.001550	
12,400	62,000	.006000	.002950	-----	-----	
12,800	64,000	.008600	.002600	-----	-----	
13,200	66,000	.011000	.002400	-----	-----	
13,600	68,000	.013150	.002150	-----	-----	
14,000	70,000	.015500	.002350	-----	-----	
14,400	72,000	.017500	.002000	-----	-----	
14,800	74,000	.020000	.002500	-----	-----	
15,200	76,000	.022550	.002550	-----	-----	Tensile strength.
15,600	78,000	.025500	.002950	-----	-----	
16,000	80,000	.028500	.003000	-----	-----	
16,400	82,000	.032250	.003750	-----	-----	
16,800	84,000	.035750	.003500	-----	-----	
17,200	86,000	.040500	.004750	-----	-----	
17,600	88,000	.046000	.005500	-----	-----	
18,000	90,000	.053500	.007500	-----	-----	
18,400	92,000	.063500	.010000	-----	-----	
18,800	94,000	.0900	.0265	-----	-----	
19,020	95,100	.1300	.040	-----	-----	

General summary.

Specific gravity.....	7.8705
Tensile strength per square inch of original section	pounds.. 95,100
Elastic limit per square inch of original section	do... 58,000
Elongation per inch after rupture.....	inch.. .2350
Elongation per inch under strain at elastic limit	do... .001800
Reduction in diameter at point of rupture.....	do.... .145
Reduction in area after rupture, per centum of original section	 49.1
Position of rupture.....	".85 from neck
Character of broken surface.....	silky, traces of granulation
Elongation of inch sections	".32*, ".15

No. 1652.

Marks, $\frac{32}{B} T_3$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000800	.000150	0.	.....	
7,000	35,000	.000950	.000150	0.	.....	
8,000	40,000	.001100	.000150	0.	.....	
9,000	45,000	.001300	.000200	0.	.....	
10,000	50,000	.001450	.000150	0.		Elastic limit.
10,200	51,000	.001500	.000050	.....	.....	
10,400	52,000	.001550	.000050	.....	.....	
10,600	53,000	.001600	.000050	.....	.....	
10,800	54,000	.001650	.000050	.....	.....	
11,000	55,000	.001950	.000300	.000250	.000250	
11,200	56,000	.002400	.000450	.....	.....	
11,400	57,000	.003600	.001200	.....	.....	
11,600	58,000	.004650	.001050	.....	.....	
11,800	59,000	.005700	.001050	.....	.....	
12,000	60,000	.006700	.001000	.004400	.004150	Tensile strength.
12,400	62,000	.008250	.001550	.....	.....	
12,800	64,000	.010600	.002350	.....	.....	
13,200	66,000	.013100	.002500	.....	.....	
13,600	68,000	.015600	.002500	.....	.....	
14,000	70,000	.017600	.002000	.....	.....	
14,400	72,000	.020000	.002400	.....	.....	
14,800	74,000	.023050	.003050	.....	.....	
15,200	76,000	.025500	.002450	.....	.....	
15,600	78,000	.028750	.003250	.....	.....	
16,000	80,000	.032250	.003500			
16,400	82,000	.036050	.003800	.....	.....	
16,800	84,000	.040600	.004550	.....	.....	
17,200	86,000	.046750	.006150	.....	.....	
17,600	88,000	.054750	.008000	.....	.....	
18,000	90,000	.063500	.008750	.....	.....	
18,400	92,000	.082000	.018500	.....	.....	
18,550	92,750	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	92,750
Elastic limit per square inch of original section	do...	54,000
Elongation per inch after rupture	inch..	.2300
Elongation per inch under strain at elastic limit	do...	.001650
Reduction in diameter at point of rupture	do...	.145
Reduction in area after rupture, per centum of original section		49.1
Position of rupture	".15 from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".28*, ".18	

No. 567.

Marks, ^{32 T₃}
_{B T₃}

Length, 3'' .991.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	-----	
5,000	10,000	.000250	.000150	0.	-----	
7,500	15,000	.000450	.000200	0.	-----	
10,000	20,000	.000550	.000100	0.	-----	
12,500	25,000	.000700	.000150	0.	-----	
15,000	30,000	.000900	.000200	0.	-----	
17,500	35,000	.001050	.000150	.000050	.000050	
20,000	40,000	.001200	.000150	.000050	0.	
22,500	45,000	.001350	.000150	.000050	0.	
25,000	50,000	.001500	.000150	.000050	0.	
25,500	51,000	.001500	0.	-----	-----	
26,000	52,000	.001550	.000050	-----	-----	
26,500	53,000	.001550	0.	-----	-----	
27,000	54,000	.001600	.000050	-----	-----	
27,500	55,000	.001650	.000050	.000100	.000050	
28,000	56,000	.001650	0.	-----	-----	
28,500	57,000	.001700	.000050	-----	-----	
29,000	58,000	.001750	.000050	-----	-----	Elastic limit.
29,500	59,000	.002050	.000300	-----	-----	
30,000	60,000	.002650	.000600	.000750	.000650	
30,500	61,000	.003250	.000600	-----	-----	
31,000	62,000	.004250	.001000	-----	-----	
31,500	63,000	.005150	.000900	-----	-----	Ultimate strength.
32,000	64,000	.006050	.000900	-----	-----	
32,500	65,000	.006950	.000900	.004650	.003900	
49,500	99,000	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section pounds.. 58,000
 Compression per inch under stress at elastic limit inch.. 0.001750
 Ultimate strength per square inch of original section pounds.. 99,900
 Manner of failure triple flexure

H. Ex. 31—3

No. 1653.

Marks, ³²T₃
M T₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001350	.000150	0.	.....	
10,000	50,000	.001550	.000200	0.		Elastic limit.
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.001750	.000050	.....	.....	
11,000	55,000	.002050	.000300	.000250	.000250	
11,200	56,000	.002550	.000500	.....	.....	
11,400	57,000	.002950	.000400	.....	.....	
11,600	58,000	.003750	.000800	.....	.....	
11,800	59,000	.005150	.001400	.....	.....	
12,000	60,000	.006450	.001300	.004300	.004050	Tensile strength.
12,400	62,000	.008700	.002250	.....	.....	
12,800	64,000	.010600	.001900	.....	.....	
13,200	66,000	.012900	.002300	.....	.....	
13,600	68,000	.015250	.002350	.....	.....	
14,000	70,000	.017750	.002500	.....	.....	
14,400	72,000	.020350	.002600	.....	.....	
14,800	74,000	.023250	.002900	.....	.....	
15,200	76,000	.026250	.003000	.....	.....	
15,600	78,000	.029000	.002750	.....	.....	
16,000	80,000	.032650	.003650	.....	.....	
16,400	82,000	.037000	.004350	.....	.....	
16,800	84,000	.041750	.004750	.....	.....	
17,200	86,000	.047000	.005250	.....	.....	
17,600	88,000	.054500	.007500	.....	.....	
18,000	90,000	.066500	.012000	.....	.....	
18,400	92,000	.083500	.017000	.....	.....	
18,580	92,900	.1150	.0315	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	92,900
Elastic limit per square inch of original section	do....	54,000
Elongation per inch after rupture	inch..	0.1200
Elongation per inch under strain at elastic limit	do....	.001750
Reduction in diameter at point of rupture	do....	.035
Reduction in area after rupture, per centum of original section		13.2
Position of rupture		".20 from neck
Character of broken surface	granular; contains flaky spot	
Elongation of inch sections		".15*, ".09

No. 1654.

Marks, $\frac{32}{M} T_3$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	.0	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000250	.000150	0.	-----	
3,000	15,000	.000350	.000100	0.	-----	
4,000	20,000	.000500	.000150	0.	-----	
5,000	25,000	.000700	.000200	0.	-----	
6,000	30,000	.000850	.000150	0.	-----	
7,000	35,000	.001050	.000200	0.	-----	
8,000	40,000	.001250	.000200	0.	-----	
9,000	45,000	.001350	.000100	0.	-----	
10,000	50,000	.001500	.000150	.000050	.000050	
10,200	51,000	.001550	.000050	-----	-----	
10,400	52,000	.001600	.000050	-----	-----	
10,600	53,000	.001650	.000050	-----	-----	
10,800	54,000	.001750	.000100	-----	-----	Elastic limit.
11,000	55,000	.002250	.000500	.000400	.000350	
11,200	56,000	.002750	.000500	-----	-----	
11,400	57,000	.003400	.000650	-----	-----	
11,600	58,000	.004450	.001050	-----	-----	
11,800	59,000	.006000	.001550	-----	-----	
12,000	60,000	.007250	.001250	.004950	.004550	
12,400	62,000	.009150	.001900	-----	-----	
12,800	64,000	.010850	.001700	-----	-----	
13,200	66,000	.013150	.002300	-----	-----	
13,600	68,000	.015600	.002450	-----	-----	
14,000	70,000	.018050	.002450	-----	-----	
14,400	72,000	.020450	.002400	-----	-----	
14,800	74,000	.022850	.002400	-----	-----	
15,200	76,000	.025450	.002600	-----	-----	
15,600	78,000	.028600	.003150	-----	-----	
16,000	80,000	.032000	.003400	-----	-----	
16,400	82,000	.036100	.004100	-----	-----	
16,800	84,000	.040600	.004500	-----	-----	
17,200	86,000	.046550	.005950	-----	-----	
17,600	88,000	.053700	.007150	-----	-----	
18,000	90,000	.064250	.010550	-----	-----	
18,400	92,000	.0850	.020750	-----	-----	
18,680	93,400	.1150	.0300	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds ..	93,400
Elastic limit per square inch of original section	do	54,000
Elongation per inch after rupture	inch ..	0.1950
Elongation per inch under strain at elastic limit	do	.001750
Reduction in diameter at point of rupture	do	.124
Reduction in area after rupture, per centum of original section	do	43.3
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	granular, 50 per centum ; silky, 50 per centum	
Elongation of inch sections	" .29* ".10	

No. 238.

Marca, $\frac{3}{4}$ T
 Diameter, 1.505
 Sectional area, .20 square inch.

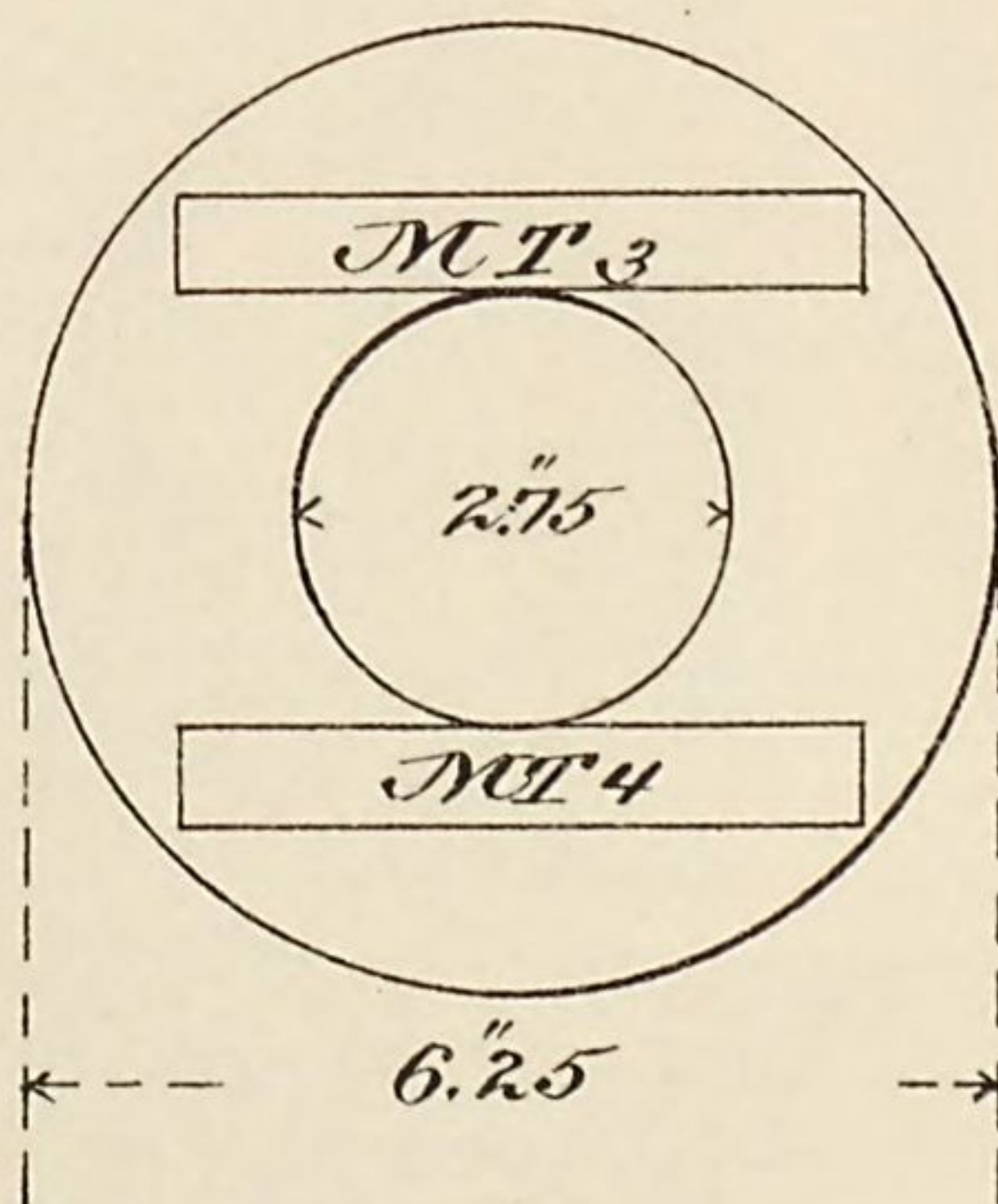
Tubo No. 3					
3.5 Rifle					
Applied load	Initial load	First yield	Second yield	Third yield	Fourth yield
100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500
600	600	600	600	600	600
700	700	700	700	700	700
800	800	800	800	800	800
900	900	900	900	900	900
1000	1000	1000	1000	1000	1000
1100	1100	1100	1100	1100	1100
1200	1200	1200	1200	1200	1200
1300	1300	1300	1300	1300	1300
1400	1400	1400	1400	1400	1400
1500	1500	1500	1500	1500	1500
1600	1600	1600	1600	1600	1600
1700	1700	1700	1700	1700	1700
1800	1800	1800	1800	1800	1800
1900	1900	1900	1900	1900	1900
2000	2000	2000	2000	2000	2000
2100	2100	2100	2100	2100	2100
2200	2200	2200	2200	2200	2200
2300	2300	2300	2300	2300	2300
2400	2400	2400	2400	2400	2400
2500	2500	2500	2500	2500	2500
2600	2600	2600	2600	2600	2600
2700	2700	2700	2700	2700	2700
2800	2800	2800	2800	2800	2800
2900	2900	2900	2900	2900	2900
3000	3000	3000	3000	3000	3000
3100	3100	3100	3100	3100	3100
3200	3200	3200	3200	3200	3200
3300	3300	3300	3300	3300	3300
3400	3400	3400	3400	3400	3400
3500	3500	3500	3500	3500	3500
3600	3600	3600	3600	3600	3600
3700	3700	3700	3700	3700	3700
3800	3800	3800	3800	3800	3800
3900	3900	3900	3900	3900	3900
4000	4000	4000	4000	4000	4000
4100	4100	4100	4100	4100	4100
4200	4200	4200	4200	4200	4200
4300	4300	4300	4300	4300	4300
4400	4400	4400	4400	4400	4400
4500	4500	4500	4500	4500	4500
4600	4600	4600	4600	4600	4600
4700	4700	4700	4700	4700	4700
4800	4800	4800	4800	4800	4800
4900	4900	4900	4900	4900	4900
5000	5000	5000	5000	5000	5000
5100	5100	5100	5100	5100	5100
5200	5200	5200	5200	5200	5200
5300	5300	5300	5300	5300	5300
5400	5400	5400	5400	5400	5400
5500	5500	5500	5500	5500	5500
5600	5600	5600	5600	5600	5600
5700	5700	5700	5700	5700	5700
5800	5800	5800	5800	5800	5800
5900	5900	5900	5900	5900	5900
6000	6000	6000	6000	6000	6000
6100	6100	6100	6100	6100	6100
6200	6200	6200	6200	6200	6200
6300	6300	6300	6300	6300	6300
6400	6400	6400	6400	6400	6400
6500	6500	6500	6500	6500	6500
6600	6600	6600	6600	6600	6600
6700	6700	6700	6700	6700	6700
6800	6800	6800	6800	6800	6800
6900	6900	6900	6900	6900	6900
7000	7000	7000	7000	7000	7000
7100	7100	7100	7100	7100	7100
7200	7200	7200	7200	7200	7200
7300	7300	7300	7300	7300	7300
7400	7400	7400	7400	7400	7400
7500	7500	7500	7500	7500	7500
7600	7600	7600	7600	7600	7600
7700	7700	7700	7700	7700	7700
7800	7800	7800	7800	7800	7800
7900	7900	7900	7900	7900	7900
8000	8000	8000	8000	8000	8000
8100	8100	8100	8100	8100	8100
8200	8200	8200	8200	8200	8200
8300	8300	8300	8300	8300	8300
8400	8400	8400	8400	8400	8400
8500	8500	8500	8500	8500	8500
8600	8600	8600	8600	8600	8600
8700	8700	8700	8700	8700	8700
8800	8800	8800	8800	8800	8800
8900	8900	8900	8900	8900	8900
9000	9000	9000	9000	9000	9000
9100	9100	9100	9100	9100	9100
9200	9200	9200	9200	9200	9200
9300	9300	9300	9300	9300	9300
9400	9400	9400	9400	9400	9400
9500	9500	9500	9500	9500	9500
9600	9600	9600	9600	9600	9600
9700	9700	9700	9700	9700	9700
9800	9800	9800	9800	9800	9800
9900	9900	9900	9900	9900	9900
10000	10000	10000	10000	10000	10000

H Ex 31 40 5

Tube No. 3 3.2" Rifle

Additional specimens

Muzzle end



H Ex 3/ 49 2

No. 2238.

Marks, $^{32}T_3$
 MT_3 Diameter, $\frac{1}{4}$ ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000700	.000250	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001500	.000200	0.	.....	
9,200	46,000	.001500	0.			Elastic limit.
9,400	47,000	.001550	.000050	.....	.....	
9,600	48,000	.001600	.000050	.....	.....	
9,800	49,000	.001650	.000050	.....	.....	
10,000	50,000	.009950	.008300	.....	.....	
10,200	51,000	.010700	.000750	.....	.....	
10,400	52,000	.011450	.000750	.....	.....	
10,600	53,000	.013000	.001550	.....	.....	
10,800	54,000	.014150	.001150	.....	.....	
11,000	55,000	.015350	.001200	.....	.....	
11,200	56,000	.017000	.001650	.....	.....	
11,400	57,000	.017900	.000900	.....	.....	
11,600	58,000	.019150	.001250	.....	.....	
11,800	59,000	.020800	.001650	.....	.....	
12,000	60,000	.022250	.001450	.....	.....	
12,400	62,000	.025150	.002900	.....	.....	
12,800	64,000	.028500	.003350	.....	.....	
13,200	66,000	.032650	.004150	.....	.....	
13,600	68,000	.036200	.003550	.....	.....	
14,000	70,000	.042000	.005800	.....	.....	
14,400	72,000	.049000	.007000	.....	.....	
14,800	74,000	.056000	.007000	.....	.....	
15,200	76,000	.065600	.009600	.....	.....	
15,600	78,000	.0850	.0194	.....	.....	
16,000	80,000	.1050	.0200	.....	.....	
16,140	80,700	.1600	.0550			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	80,700
Elastic limit per square inch of original section	do....	49,000
Elongation per inch after rupture	inch..	0.2850
Elongation per inch under strain at elastic limit	do....	.001650
Reduction in diameter at point of rupture	do....	.155
Reduction in area after rupture, per centum of original section		51.9
Position of rupture	$\frac{7}{8}$ -inch from neck	
Character of broken surface	silky	
Elongation of inch sections	" .37", ".20	

No. 2239.

Marks, $\frac{32}{M} T_3$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000800	.000250	0.	.....	
5,000	25,000	.000950	.000150	0.	.....	
6,000	30,000	.001150	.000200	0.	.....	
7,000	35,000	.001350	.000200	0.	.....	
7,600	38,000	.001450	.000100	.....	.....	
7,800	39,000	.001550	.000100	.....	.....	Elastic limit.
8,000	40,000	.004650	.003100	.003300	.003300	
8,200	41,000	.010150	.005500	.....	.....	
8,400	42,000	.010650	.000500	.....	.....	
8,600	43,000	.011600	.000950	.....	.....	
8,800	44,000	.012550	.000950	.....	.....	
9,000	45,000	.013900	.001350	.....	.....	
9,200	46,000	.014750	.000850	.....	.....	
9,400	47,000	.016050	.001300	.....	.....	
9,600	48,000	.017000	.000950	.....	.....	
9,800	49,000	.017800	.000800	.....	.....	
10,000	50,000	.018750	.000950	.....	.....	
10,200	51,000	.021200	.002450	.....	.....	
10,400	52,000	.022800	.001600	.....	.....	
10,600	53,000	.023500	.000700	.....	.....	
10,800	54,000	.024750	.001250	.....	.....	
11,000	55,000	.026750	.002000	.....	.....	
11,200	56,000	.028750	.002000	.....	.....	
11,400	57,000	.030750	.002000	.....	.....	
11,600	58,000	.032500	.001750	.....	.....	
11,800	59,000	.035000	.002500	.....	.....	
12,000	60,000	.036500	.001500	.....	.....	
12,400	62,000	.042050	.005550	.....	.....	
12,800	64,000	.047500	.005450	.....	.....	
13,200	66,000	.055500	.008000	.....	.....	
13,600	68,000	.063250	.007750	.....	.....	
14,000	70,000	.0750	.011750	.....	.....	
14,400	72,000	.1000	.0250	.....	.....	
14,800	74,000	.1400	.0400	.....	.....	
14,916	74,550	.1900	.0500	.....	.....	Tensile strength.

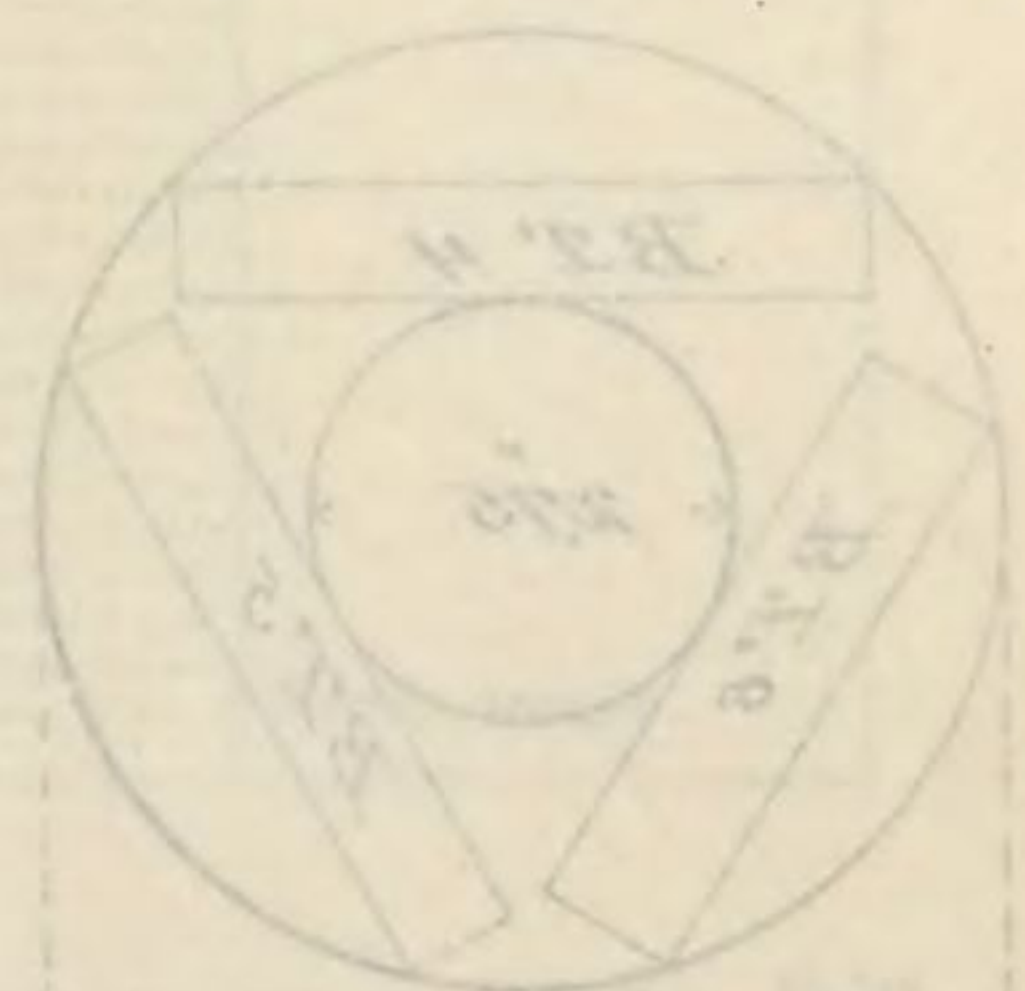
General summary.

Tensile strength per square inch of original section.....	pounds..	74,550
Elastic limit per square inch of original section.....	do.....	39,000
Elongation per inch after rupture.....	inch..	0.2850
Elongation per inch under strain at elastic limit.....	do.....	.001550
Reduction in diameter at point of rupture.....	do.....	.145
Reduction in area after rupture, per centum of original section.....		49.1
Position of rupture.....	§ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	" .40, * ".17	

1000
1000
1000

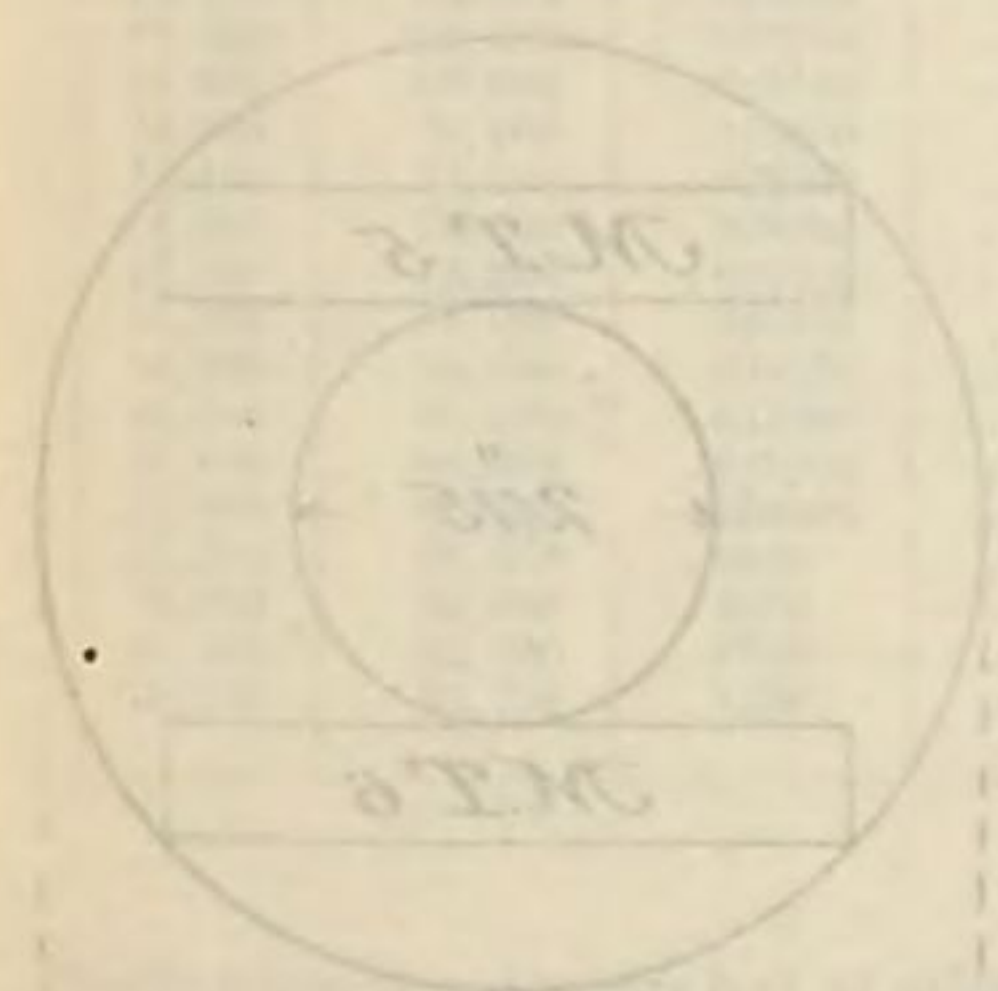
New Libe No 3 3.2 Rifle

Breach end



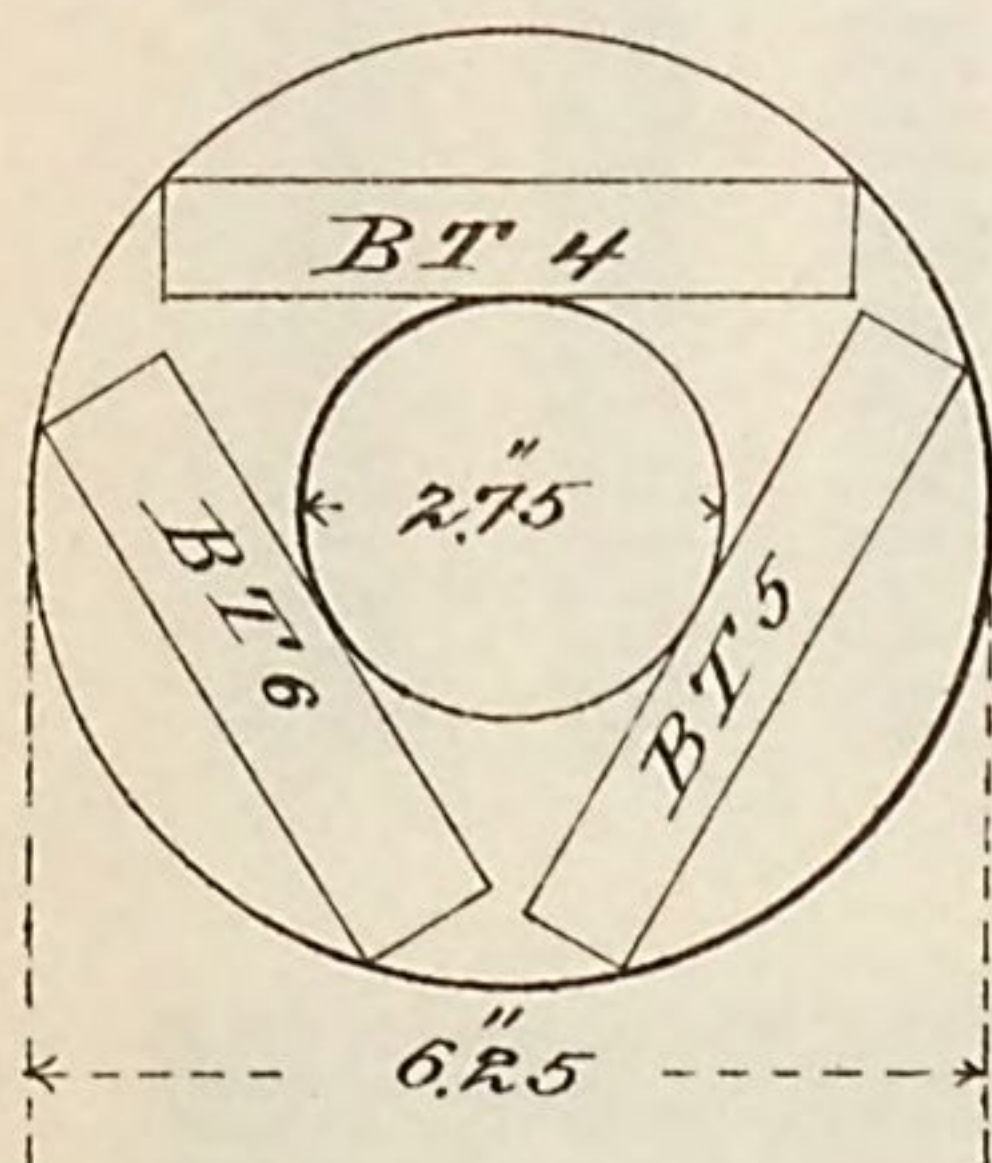
H Ex 31 49 2

Muzzle end

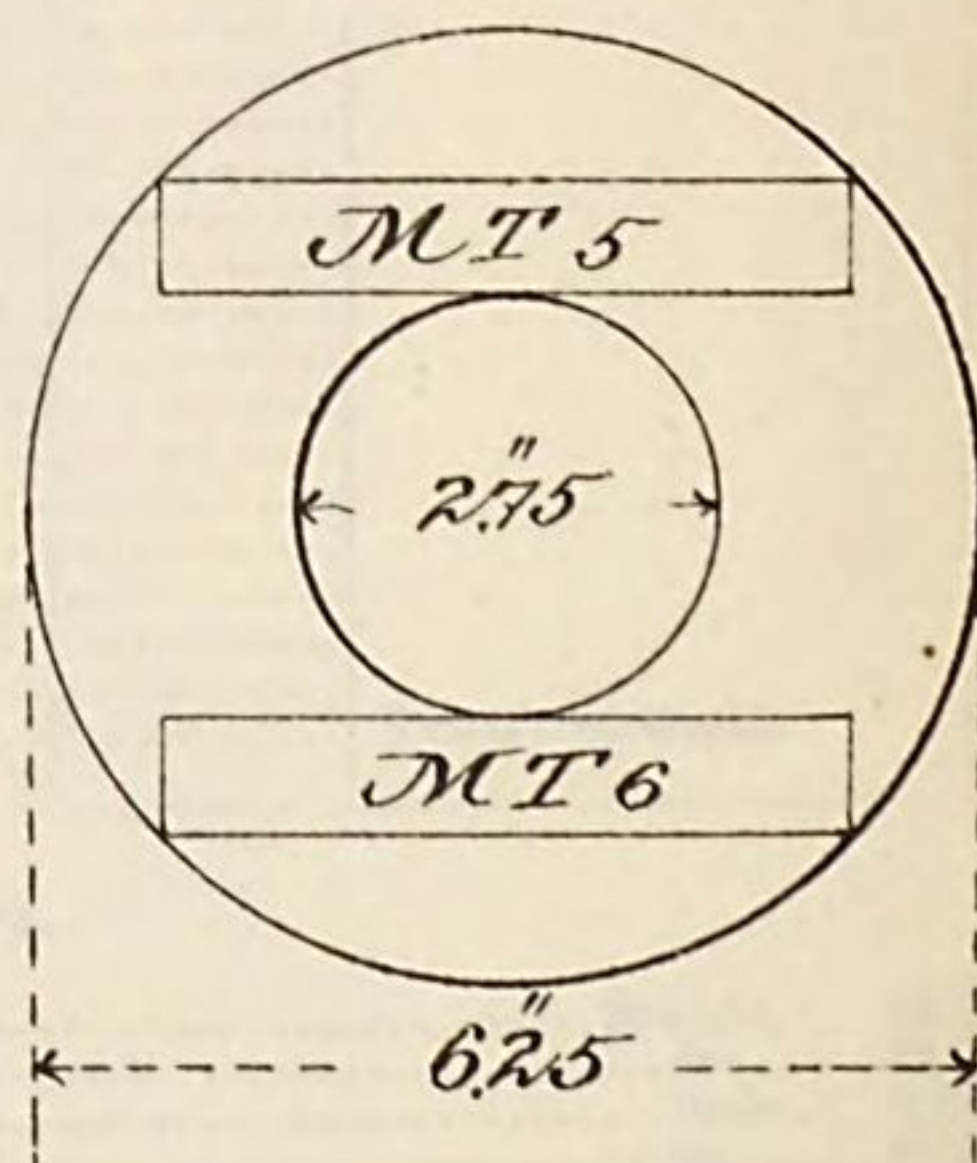


New Tube No. 3 3.2 Rifle

Breech end



Muzzle end



H Ex 31 49 2

No. 2700.

Marks, $\frac{32}{B} \frac{T_3}{T_4}$ Diameter, $\frac{1}{4}$.506.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000650	.000100	.000050	.000050	
6,000	30,000	.000850	.000200	.000050	0.	
7,000	35,000	.001050	.000200	.....	.....	
8,000	40,000	.001150	.000100	.....	.....	
9,000	45,000	.001300	.000150	.....	.....	
10,000	50,000	.001550	.000250			Elastic limit.
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.002250	.000600	.....	.....	
10,800	54,000	.002900	.000650	.....	.....	
11,000	55,000	.004250	.001350	.....	.....	
11,200	56,000	.005250	.001000	.....	.....	
11,400	57,000	.006250	.001000	.....	.....	
11,600	58,000	.007250	.001000	.....	.....	
11,800	59,000	.008150	.000900	.....	.....	
12,000	60,000	.009100	.000950	.....	.....	
12,400	62,000	.011250	.002150	.....	.....	
12,800	64,000	.013000	.001750	.....	.....	
13,200	66,000	.015250	.002250	.....	.....	
13,600	68,000	.017500	.002250	.....	.....	
14,000	70,000	.019650	.002150	.....	.....	
14,400	72,000	.022250	.002600	.....	.....	
14,800	74,000	.025000	.002750	.....	.....	
15,200	76,000	.027500	.002500	.....	.....	
15,600	78,000	.030150	.002650	.....	.....	
16,000	80,000	.034250	.004100	.....	.....	
16,400	82,000	.038000	.003750	.....	.....	
16,800	84,000	.042500	.004500	.....	.....	
17,200	86,000	.050000	.007500	.....	.....	
17,600	88,000	.0600	.0100	.....	.....	
18,000	90,000	.0650	.0050	.....	.....	
18,400	92,000	.0750	.0100	.....	.....	
18,750	93,750	.1350	.0600			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	93,750
Elastic limit per square inch of original section	do....	52,000
Elongation per inch after rupture	inch..	.02350
Elongation per inch under strain at elastic limit	do....	.001650
Reduction in diameter at point of rupture	do....	.136
Reduction in area after rupture, per centum of original section		46.2
Position of rupture	" .45 from middle	
Character of broken surface	silky	
Elongation of inch sections	" .13, ".34*	

No. 2701.

Marks, $\frac{32}{B} T_5$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001400	.000150	.....	.....	
10,000	50,000	.001550	.000150	.....	.....	
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.001750	.000050	.....	.....	Elastic limit.
11,000	55,000	.002500	.000750	.....	.....	
11,200	56,000	.003100	.000600	.....	.....	
11,400	57,000	.004000	.000900	.....	.....	
11,600	58,000	.005000	.001000	.....	.....	
11,800	59,000	.006000	.001000	.....	.....	
12,000	60,000	.007000	.001000	.....	.....	
12,400	62,000	.008750	.001750	.....	.....	
12,800	64,000	.010500	.001750	.....	.....	
13,200	66,000	.012500	.002000	.....	.....	
13,600	68,000	.013750	.001250	.....	.....	
14,000	70,000	.015500	.001750	.....	.....	
14,400	72,000	.017750	.002250	.....	.....	
14,800	74,000	.020000	.002250	.....	.....	
15,200	76,000	.022500	.002500	.....	.....	
15,600	78,000	.025250	.002750	.....	.....	
16,000	80,000	.028000	.002750	.....	.....	
16,400	82,000	.030500	.002500	.....	.....	
16,800	84,000	.034500	.004000	.....	.....	
17,200	86,000	.038000	.003500	.....	.....	
17,600	88,000	.042000	.004000	.....	.....	
18,000	90,000	.046500	.004500	.....	.....	
18,400	92,000	.0550	.0085	.....	.....	
18,800	94,000	.0600	.0050	.....	.....	
19,200	96,000	.0750	.0150	.....	.....	
19,490	97,450	.1150	.0400	.....	.....	Tensile strength. —

General summary.

Tensile strength per square inch of original section	pounds..	97,450
Elastic limit per square inch of original section	do....	54,000
Elongation per inch after rupture	inch..	0.1800
Elongation per inch under strain at elastic limit	do....	.001750
Reduction in diameter at point of rupture	do....	.095
Reduction in area after rupture, per centum of original section		34.0
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	granular, dull flaky center	
Elongation of inch sections	".11, ".25*	

No. 670.

Marks, ^{32 T₃}
_{B T₆}

Length, 4'' .003.

Diameter, '' .785.

Sectional area, .484 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
484	1,000	0.	0.	0.	0.	Initial load.
2,420	5,000	.000167	.000167	0.	-----	
4,840	10,000	.000333	.000166	0.	-----	
7,260	15,000	.000500	.000167	0.	-----	
9,680	20,000	.000667	.000167	0.	-----	
12,100	25,000	.000833	.000166	0.	-----	
14,520	30,000	.001000	.000167	0.	-----	
16,940	35,000	.001167	.000167	0.	-----	
19,360	40,000	.001367	.000200	0.	-----	
19,844	41,000	.001367	0.	-----	-----	
20,328	42,000	.001400	.000033	-----	-----	
20,812	43,000	.001433	.000033	-----	-----	
21,296	44,000	.001500	.000067	-----	-----	
21,780	45,000	.001533	.000033	-----	-----	
22,264	46,000	.001567	.000034	-----	-----	
22,748	47,000	.001600	.000033	-----	-----	Elastic limit.
23,232	48,000	.001767	.000167	-----	-----	
23,716	49,000	.002500	.000733	-----	-----	
24,200	50,000	.003067	.000567	-----	-----	
24,684	51,000	.003900	.000833	-----	-----	
25,168	52,000	.004933	.001033	-----	-----	Ultimate strength.
48,100	99,380	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original sectionpounds.. 47,000
 Compression per inch under stress at elastic limitinch.. 0.001600
 Ultimate strength per square inch of original sectionpounds.. 99,380
 Manner of failuretriple flexure

No. 2702.

Marks, ³²T₃
M T₅

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000400	.000300	0.	-----	
3,000	15,000	.000500	.000100	0.	-----	
4,000	20,000	.000650	.000150	0.	-----	
5,000	25,000	.000900	.000250	0.	-----	
6,000	30,000	.001000	.000100	0.	-----	
7,000	35,000	.001250	.000250	0.	-----	
8,000	40,000	.001450	.000200	0.	-----	
9,000	45,000	.001600	.000150	-----	-----	
10,000	50,000	.001800	.000200	-----	-----	Elastic limit.
10,200	51,000	.001850	.000050	-----	-----	
10,400	52,000	.001900	.000050	-----	-----	
10,600	53,000	.001950	.000050	-----	-----	
10,800	54,000	.002000	.000050	-----	-----	
11,000	55,000	.002000	0.	-----	-----	
11,200	56,000	.002100	.000100	-----	-----	
11,400	57,000	.002250	.000150	-----	-----	
11,600	58,000	.002500	.000250	-----	-----	
11,800	59,000	.002700	.000200	-----	-----	
12,000	60,000	.003100	.000400	-----	-----	Tensile strength.
12,400	62,000	.004250	.001150	-----	-----	
12,800	64,000	.007000	.002750	-----	-----	
13,200	66,000	.008750	.001750	-----	-----	
13,600	68,000	.010600	.001850	-----	-----	
14,000	70,000	.012500	.001900	-----	-----	
14,400	72,000	.015150	.002650	-----	-----	
14,800	74,000	.017250	.002100	-----	-----	
15,200	76,000	.019250	.002000	-----	-----	
15,600	78,000	.022000	.002750	-----	-----	
16,000	80,000	.024500	.002500	-----	-----	Tensile strength.
16,400	82,000	.027500	.003000	-----	-----	
16,800	84,000	.030400	.002900	-----	-----	
17,200	86,000	.034500	.004100	-----	-----	
17,600	88,000	.038750	.004250	-----	-----	
18,000	90,000	.043000	.004250	-----	-----	
18,400	92,000	.049000	.006000	-----	-----	
18,800	94,000	.0550	.0060	-----	-----	
19,200	96,000	.0650	.0100	-----	-----	
19,600	98,000	.0800	.0150	-----	-----	
19,820	99,100	.1300	.0500	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	99,100
Elastic limits per square inch of original section	do....	56,000
Elongation per inch after rupture	inch..	0.2200
Elongation per inch under strain of elastic limit	do....	.002100
Reduction in diameter at point of rupture	do....	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture	".35 from middle of stem	
Character of broken surface	granular, 20 per centum; silky, 80 per centum	
Elongation of inch sections	".14, ".30*	

No. 2703.

Marks, $\frac{32}{M} T_3$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square. inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	11,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	.....	.....	
8,000	40,000	.001200	.000150	.....	.....	
9,000	45,000	.001350	.000150	.....	.....	
10,000	50,000	.001500	.000150			Elastic limit.
10,200	51,000	.001550	.000050	.....	.....	
10,400	52,000	.001550	0.	.....	.....	
10,600	53,000	.001600	.000050	.....	.....	
10,800	54,000	.001650	.000050	.....	.....	
11,000	55,000	.001700	.000050	.....	.....	
11,200	56,000	.001750	.000050	.....	.....	
11,400	57,000	.002050	.000300	.....	.....	
11,600	58,000	.002500	.000450	.....	.....	
11,800	59,000	.003300	.000800	.....	.....	
12,000	60,000	.003700	.000400	.....	.....	
12,400	62,000	.005250	.001550	.....	.....	
12,800	64,000	.007350	.002100	.....	.....	
13,200	66,000	.009350	.002000	.....	.....	
13,600	68,000	.011000	.001650	.....	.....	
14,000	70,000	.012750	.001750	.....	.....	
14,400	72,000	.014850	.002100	.....	.....	
14,800	74,000	.016550	.001700	.....	.....	
15,200	76,000	.018750	.002200	.....	.....	
15,600	78,000	.020850	.002100	.....	.....	
16,000	80,000	.023150	.002300	.....	.....	
16,400	82,000	.025950	.002800	.....	.....	
16,800	84,000	.028600	.002650	.....	.....	
17,200	86,000	.032000	.003400	.....	.....	
17,600	88,000	.035150	.003150	.....	.....	
18,000	90,000	.038750	.003600	.....	.....	
18,400	92,000	.043500	.004750	.....	.....	
18,800	94,000	.049250	.005750	.....	.....	
19,200	96,000	.0550	.005750	.....	.....	
19,600	98,000	.0600	.0050	.....	.....	
20,000	100,000	.0850	.0250			Tensile strength.
20,160	100,800	.1100	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	100,800
Elastic limit per square inch of original section	do....	55,000
Elongation per inch after rupture	inch..	0.1700
Elongation per inch under strain at elastic limit	do....	.001750
Reduction in diameter at point of rupture	do....	.095
Reduction in area after rupture, per centum of original section		34.0
Position of rupture	".45 from neck	
Character of broken surface	granular, silky center	
Elongation of inch sections	".25* ".09	

No. 1655.

Marks, ³²T₄
 B T₁
Diameter, ".505.
Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000200	.000100	0.	-----	
3,000	15,000	.000350	.000150	0.	-----	
4,000	20,000	.000500	.000150	0.	-----	
5,000	25,000	.000650	.000150	0.	-----	
6,000	30,000	.000800	.000150	0.	-----	
7,000	35,000	.001000	.000200	0.	-----	
8,000	40,000	.001150	.000150	0.	-----	
9,000	45,000	.001350	.000200	0.	-----	
9,200	46,000	.001400	.000050	-----	-----	Elastic limit.
9,400	47,000	.002600	.001200	-----	-----	
9,600	48,000	.003200	.000300	-----	-----	
9,800	49,000	.003150	.001950	-----	-----	
10,000	50,000	.006350	.001200	.004500	.004500	
10,200	51,000	.007300	.000950	-----	-----	
10,400	52,000	.007800	.000500	-----	-----	
10,600	53,000	.008800	.001000	-----	-----	
10,800	54,000	.009800	.001000	-----	-----	
11,000	55,000	.010750	.000950	.008700	.004200	
11,200	56,000	.012000	.001250	-----	-----	
11,400	57,000	.012850	.000850	-----	-----	
11,600	58,000	.014150	.001300	-----	-----	
11,800	59,000	.015250	.001100	-----	-----	
12,000	60,000	.016250	.001000	.013950	.005250	
12,400	62,000	.019350	.003100	-----	-----	
12,800	64,000	.021700	.002350	-----	-----	
13,200	66,000	.024500	.002800	-----	-----	
13,600	68,000	.028000	.003500	-----	-----	
14,000	70,000	.031050	.003050	-----	-----	
14,400	72,000	.034750	.003700	-----	-----	Tensile strength.
14,800	74,000	.039000	.004250	-----	-----	
15,200	76,000	.045000	.006000	-----	-----	
15,600	78,000	.050600	.005600	-----	-----	
16,000	80,000	.059500	.008900	-----	-----	
16,400	82,000	.073500	.014000	-----	-----	
16,800	84,000	.1000	.0265	-----	-----	
16,980	84,900	.1450	.0450	-----	-----	

General summary.

Specific gravity	7.8724
Tensile strength per square inch of original section	pounds.. 84,900
Elastic limit per square inch of original section	do .. 46,000
Elongation per inch after rupture	inch.. 0.2500
Elongation per inch under strain at elastic limit	do .. .001400
Reduction in diameter at point of rupture	do .. .145
Reduction in area after rupture, per centum of original section	49.1
Position of rupture	".70 from neck
Character of broken surface	silky
Elongation of inch sections	".37*, ".13

No. 1656.

Marks, ³²T₁
B T₂

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000200	.000100	0.	-----	
3,000	15,000	.000300	.000100	0.	-----	
4,000	20,000	.000400	.000100	0.	-----	
5,000	25,000	.000550	.000150	0.	-----	
6,000	30,000	.000700	.000150	0.	-----	
7,000	35,000	.000900	.000200	0.	-----	
8,000	40,000	.001100	.000200	0.	-----	
8,200	41,000	.001150	.000050	-----	-----	
8,400	42,000	.001150	0.	-----	-----	
8,600	43,000	.001200	.000050	-----	-----	
8,800	44,000	.001300	.000100	-----	-----	Elastic limit.
9,000	45,000	.004850	.003550	.003300	.003300	
9,200	46,000	.006500	.001650	-----	-----	
9,400	47,000	.007300	.000800	-----	-----	
9,600	48,000	.008400	.001100	-----	-----	
9,800	49,000	.009350	.000950	-----	-----	
10,000	50,000	.010600	.001250	.008800	.005500	
10,200	51,000	.011750	.001150	-----	-----	
10,400	52,000	.011600	.000850	-----	-----	
10,600	53,000	.013750	.001150	-----	-----	
10,800	54,000	.015000	.001250	-----	-----	
11,000	55,000	.016050	.001050	-----	-----	
11,200	56,000	.017450	.001400	-----	-----	
11,400	57,000	.019100	.001650	-----	-----	
11,600	58,000	.020100	.001000	-----	-----	
11,800	59,000	.021400	.001300	-----	-----	
12,000	60,000	.022900	.001500	-----	-----	
12,400	62,000	.025650	.002750	-----	-----	
12,800	64,000	.029000	.003350	-----	-----	
13,200	66,000	.033050	.004050	-----	-----	
13,600	68,000	.037000	.003950	-----	-----	
14,000	70,000	.042050	.005050	-----	-----	
14,400	72,000	.049000	.006950	-----	-----	
14,800	74,000	.056250	.007250	-----	-----	
15,200	76,000	.066500	.010250	-----	-----	
15,600	78,000	.084000	.017500	-----	-----	
16,000	80,000	.1100	.1260	-----	-----	Tensile strength.
16,080	80,400	.1450	.1350	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	80,400
Elastic limit per square inch of original section.....	do.....	44,000
Elongation per inch after rupture.....	inch..	0.2050
Elongation per inch under strain at elastic limit.....	do.....	.001300
Reduction in diameter at point of rupture.....	do.....	.104
Reduction in area after rupture, per centum of original section.....		37.1
Position of rupture.....	$\frac{1}{2}$ inch from neck	
Character of broken surface.....	granular, 50 per centum; silky, 50 per centum	
Elongation of inch sections.....	".30*, '.11	

No. 568.

Marks, ³²T₄
B T₃

Length, 4".004.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	-----	
5,000	10,000	.000250	.000150	0.	-----	
7,500	15,000	.000400	.000150	0.	-----	
10,000	20,000	.000550	.000150	0.	-----	
12,500	25,000	.000700	.000150	0.	-----	
15,000	30,000	.000850	.000150	0.	-----	
17,500	35,000	.001050	.000200	0.	-----	
20,000	40,000	.001400	.000350	.000150	.000150	Elastic limit.
20,500	41,000	.001550	.000150	-----	-----	
21,000	42,000	.001700	.000150	-----	-----	
21,500	43,000	.001950	.000250	-----	-----	
22,000	44,000	.002600	.000650	-----	-----	
22,500	45,000	.003700	.001100	.002050	.001900	
23,000	46,000	.006300	.002600	-----	-----	
23,500	47,000	.008600	.002300	-----	-----	
24,000	48,000	.009350	.000750	-----	-----	
24,500	49,000	.010650	.001300	-----	-----	
25,000	50,000	.011800	.001150	.009850	.007800	Ultimate strength.
44,040	88,080	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original sectionpounds.. 40,000
 Compression per inch under stress at elastic limit.....inch.. 0.001400
 Ultimate strength per square inch of original section.....pounds.. 88,080
 Manner of failuretriple flexure

No. 1657.

Marks, $\frac{32}{M} T_1$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000350	.000250	0.	-----	
3,000	15,000	.000500	.000150	0.	-----	
4,000	20,000	.000700	.000200	0.	-----	
5,000	25,000	.000850	.000150	0.	-----	
6,000	30,000	.001000	.000150	0.	-----	
7,000	35,000	.001150	.000150	0.	-----	
8,000	40,000	.001300	.000150	0.	-----	
8,200	41,000	.001300	0.	-----	-----	
8,400	42,000	.001350	.000050	-----	-----	
8,600	43,000	.001350	0.	-----	-----	
8,800	44,000	.001400	.000050	-----	-----	
9,000	45,000	.001400	0.	0.	-----	
9,200	46,000	.001450	.000050	-----	-----	
9,400	47,000	.001500	.000050	-----	-----	
9,600	48,000	.001550	.000050	-----	-----	
9,800	49,000	.001550	0.	-----	-----	
10,000	50,000	.001600	.000050	.000050	.000050	
10,200	51,000	.001650	.000050	-----	-----	Elastic limit.
10,400	52,000	.001700	.000050	-----	-----	
10,600	53,000	.001750	.000050	-----	-----	
10,800	54,000	.001950	.000200	-----	-----	
11,000	55,000	.002300	.000350	.000400	.000350	
11,200	56,000	.003450	.001150	-----	-----	
11,400	57,000	.004900	.001450	-----	-----	
11,600	58,000	.006450	.001550	-----	-----	
11,800	59,000	.007200	.000750	-----	-----	
12,000	60,000	.008300	.001100	.006000	.005600	
12,400	62,000	.010600	.002300	-----	-----	
12,800	64,000	.013000	.002400	-----	-----	
13,200	66,000	.015500	.002500	-----	-----	
13,600	68,000	.017500	.002000	-----	-----	
14,000	70,000	.020350	.002850	-----	-----	
14,400	72,000	.023000	.002650	-----	-----	
14,800	74,000	.026100	.003100	-----	-----	
15,200	76,000	.029400	.003300	-----	-----	
15,600	78,000	.033250	.003850	-----	-----	
16,000	80,000	.037500	.004250	-----	-----	Tensile strength.
16,400	82,000	.043000	.005500	-----	-----	
16,800	84,000	.049000	.006000	-----	-----	
17,200	86,000	.057500	.008500	-----	-----	
17,600	88,000	.071250	.013750	-----	-----	
18,000	90,000	.0950	.023750	-----	-----	
18,010	90,050	.1150	.0200	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	90,050
Elastic limits per square inch of original section.....	do	53,000
Elongation per inch after rupture.....	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do.....	.001750
Reduction in diameter at point of rupture.....	do.....	.145
Reduction in area after rupture, per centum of original section		49.1
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".31*, ".12	

No. 1658.

Marks, $\frac{32}{M} T_4$

Diameter, ".505.

Sectional area, .20 square inch.

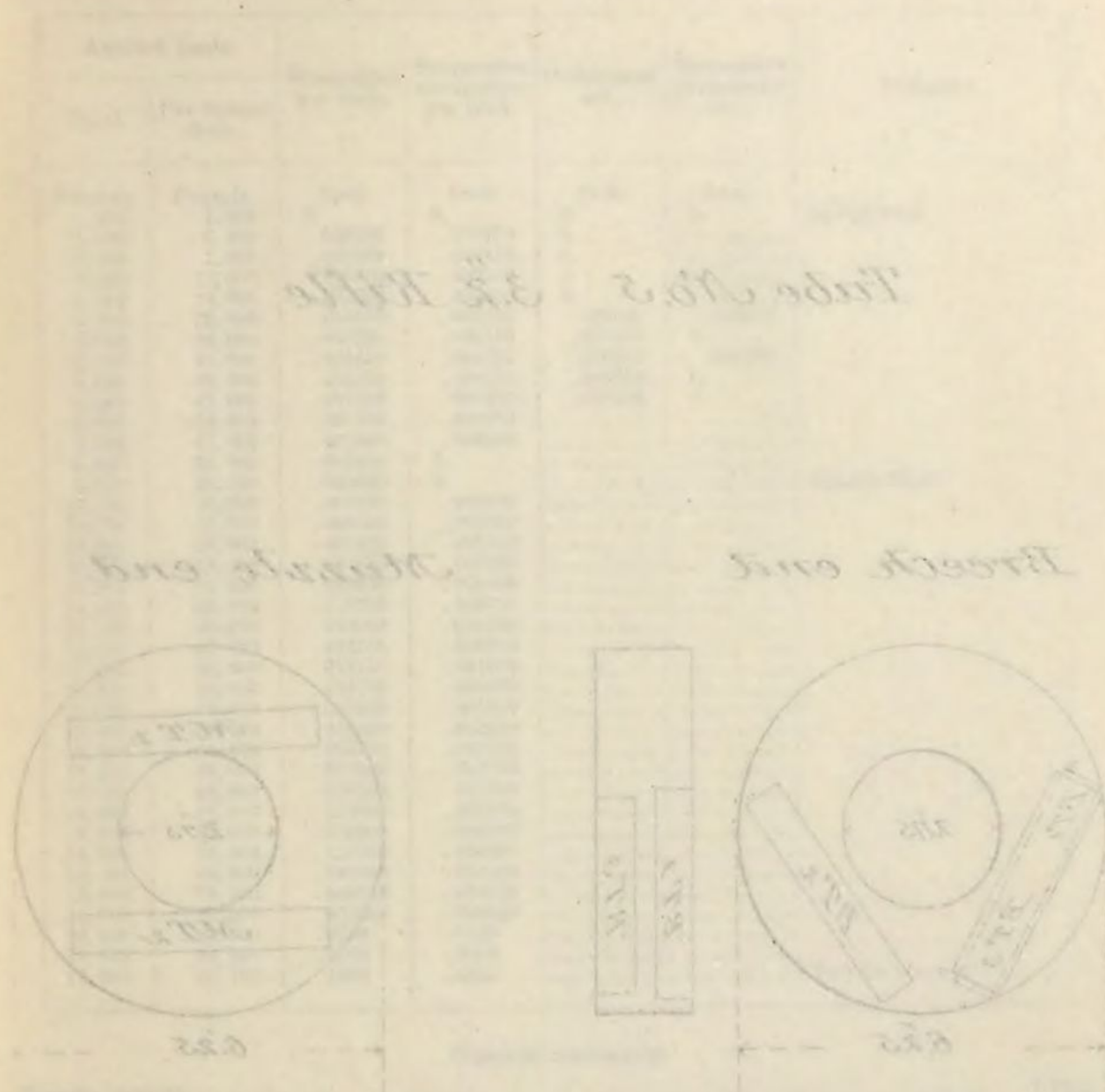
Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000250	.000150	0.	-----	
3,000	15,000	.000450	.000200	0.	-----	
4,000	20,000	.000650	.000200	0.	-----	
5,000	25,000	.000800	.000150	0.	-----	
6,000	30,000	.001000	.000200	0.	-----	
7,000	35,000	.001150	.000150	0.	-----	
8,000	40,000	.001300	.000150	.000050	.000050	
9,000	45,000	.001400	.000100	.000050	0.	
9,200	46,000	.001450	.000050	-----	-----	Elastic limit.
9,400	47,000	.001500	.000050	-----	-----	
9,600	48,000	.001550	.000050	-----	-----	
9,800	49,000	.001600	.000050	-----	-----	
10,000	50,000	.001650	.000050	.000100	.000050	
10,200	51,000	.002000	.000350	-----	-----	
10,400	52,000	.002250	.000250	-----	-----	
10,600	53,000	.002800	.000550	-----	-----	
10,800	54,000	.004350	.001550	-----	-----	
11,000	55,000	.005850	.001500	.003900	.003800	
11,200	56,000	.006800	.000950	-----	-----	
11,400	57,000	.008000	.001200	-----	-----	
11,600	58,000	.009050	.001050	-----	-----	
11,800	59,000	.010450	.001400	-----	-----	
12,000	60,000	.011400	.000950	.009300	.005400	
12,400	62,000	.013700	.002300	-----	-----	Tensile strength.
12,800	64,000	.016100	.002400	-----	-----	
13,200	66,000	.019150	.003050	-----	-----	
13,600	68,000	.022250	.003100	-----	-----	
14,000	70,000	.025600	.003350	-----	-----	
14,400	72,000	.028400	.002800	-----	-----	
14,800	74,000	.031600	.003200	-----	-----	
15,200	76,000	.035850	.001250	-----	-----	
15,600	78,000	.041000	.005150	-----	-----	
16,000	80,000	.046250	.005250	-----	-----	
16,400	82,000	.055000	.008750	-----	-----	
16,800	84,000	.066000	.011000	-----	-----	
17,200	86,000	.083500	.017500	-----	-----	
17,370	86,850	.1250	.0415	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	86,850
Elastic limit per square inch of original section	do....	50,000
Elongation per inch after rupture	inch..	0.2250
Elongation per inch under strain at elastic limit	do....	.001650
Reduction in diameter at point of rupture.....	do....	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture	".80 from neck	
Character of broken surface	silky	
Elongation of inch sections	".35*, ".10	

Fig. 24

Model No. 1
 Diameter, 1.500
 Surface area, 20 square inch.

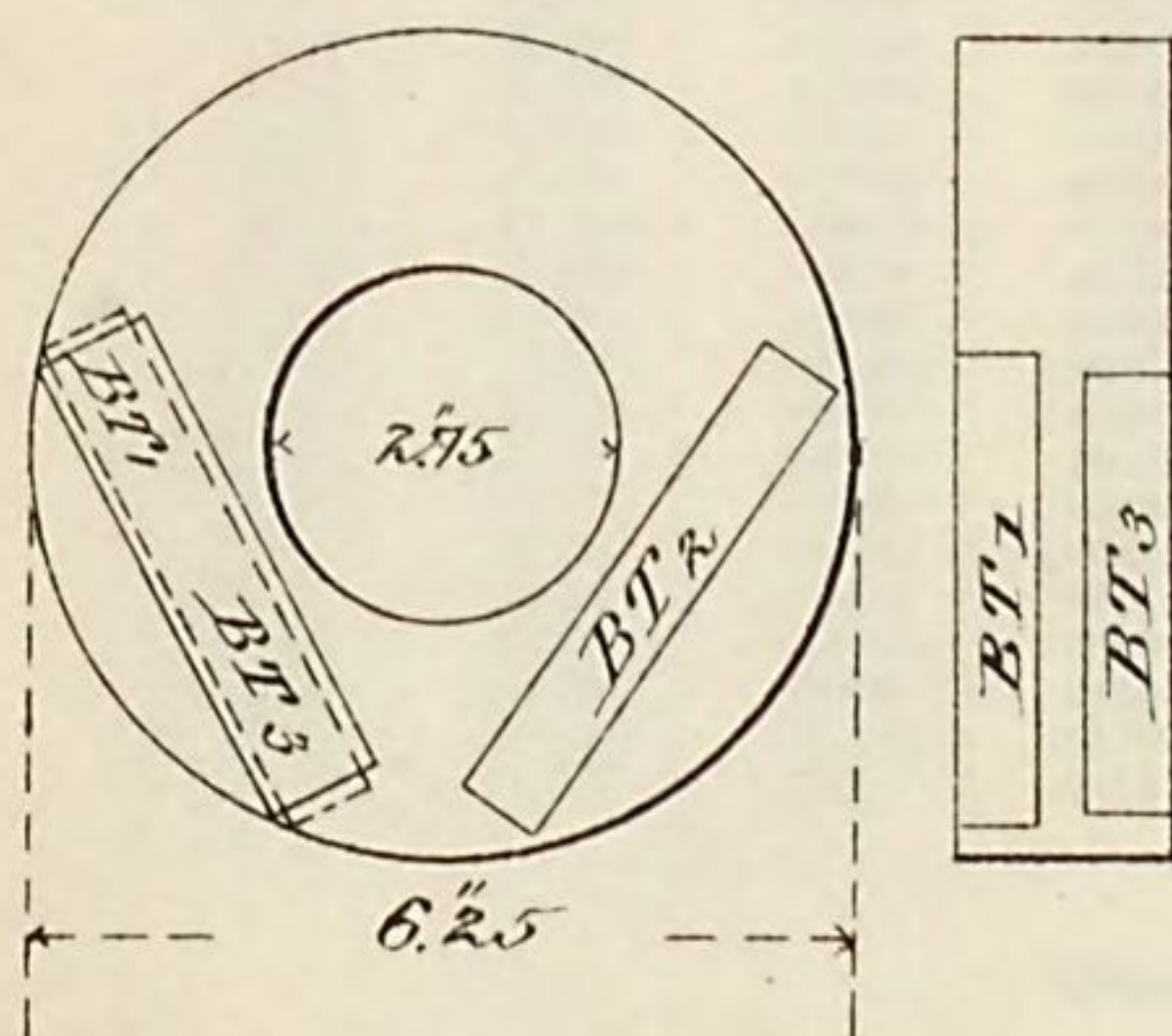


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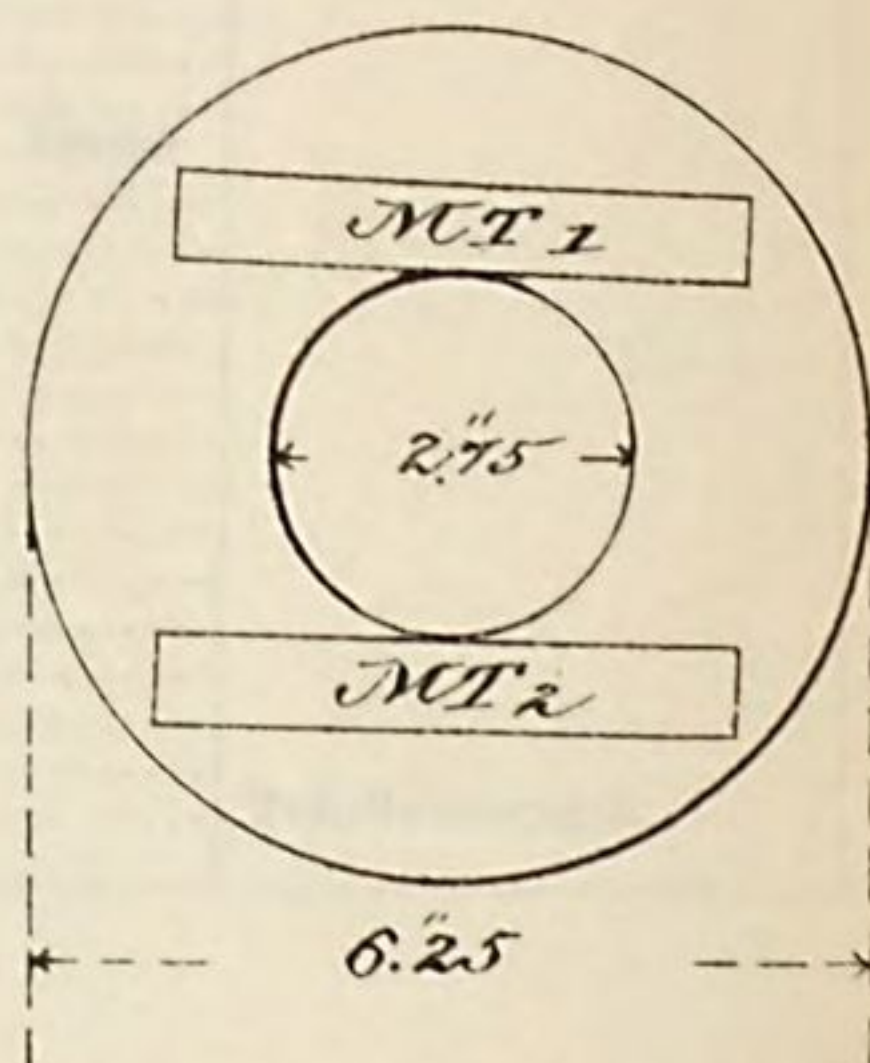
11-15-11

Tube No. 5 3.2" Rifle

Breech end



Muzzle end



H Ex 3/ 49 2

No. 2240.

Marks, ³² T₂
B T₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	1,000	.000300	.000150	0.	.....	
3,000	15,000	.000550	.000250	0.	.....	
4,000	20,000	.000800	.000250	0.	.....	
5,000	25,000	.001050	.000250	.000050	.000050	
6,000	30,000	.001200	.000150	.000050	0.	
7,000	35,000	.001400	.000200	.000100	.000050	
8,000	40,000	.001550	.000150	.000100	0.	
9,000	45,000	.001700	.000150	.000100	0.	
9,200	46,000	.001750	.000050			Elastic limit.
9,400	47,000	.001800	.000050	.....	.....	
9,600	48,000	.001800	0.	.....	.....	
9,800	49,000	.001800	0.	.....	.....	
10,000	50,000	.003850	.002050	.....	.....	
10,200	51,000	.005850	.002000	.....	.....	
10,400	52,000	.007400	.001550	.....	.....	
10,600	53,000	.008650	.001250	.....	.....	
10,800	54,000	.010000	.001350	.....	.....	
11,000	55,000	.010750	.000750	.....	.....	
11,200	56,000	.012000	.001250			Tensile strength.
11,400	57,000	.012750	.000750	.....	.....	
11,600	58,000	.013750	.001000	.....	.....	
11,800	59,000	.014750	.001000	.....	.....	
12,000	60,000	.015850	.001100	.....	.....	
12,400	62,000	.018500	.002650	.....	.....	
12,800	64,000	.020750	.002250	.....	.....	
13,200	66,000	.023500	.002750	.....	.....	
13,600	68,000	.026200	.002700	.....	.....	
14,000	70,900	.130000	.003800	.....	.....	
14,400	72,000	.034000	.004000			
14,800	74,000	.038000	.004000	.....	.....	
15,200	76,000	.042000	.004000	.....	.....	
15,600	78,000	.048500	.006500	.....	.....	
16,000	80,000	.057500	.009000	.....	.....	
16,400	82,000	.0700	.0125	.....	.....	
16,800	84,000	.0900	.0200	.....	.....	
17,030	85,150	.1350	.0450	.....	.....	

General summary.

Specific gravity.....	7.8651
Tensile strength per square inch of original section..... pounds..	85,150
Elastic limit per square inch of original section..... do.....	49,000
Elongation per inch after rupture..... inch..	0.2250
Elongation per inch under strain at elastic limit..... do.....	.001800
Reduction in diameter at point of rupture..... do.....	.155
Reduction in area after rupture, per centum of original section.....	51.9
Position of rupture.....	1" from neck
Character of broken surface.....	silky
Elongation of inch sections.....	".32*, ".13

H. Ex. 31—4

No. 2241.

Marks, ³²T₅
BT₂

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000550	.000250	0.	.....	
4,000	20,000	.000750	.000200	0.	.....	
5,000	25,000	.001000	.000250	0.	.....	
6,000	30,000	.001250	.000250	0.	.....	
7,000	35,000	.001400	.000150	0.	.....	
8,000	40,000	.001600	.000200	0.	.....	
9,000	45,000	.001750	.000150	0.	.....	
9,200	46,000	.001850	.000100	.....	.....	Elastic limit.
9,400	47,000	.002050	.000200	.....	.....	
9,600	48,000	.003500	.001450	.....	.....	
9,800	49,000	.005000	.001500	.....	.....	
10,000	50,000	.006000	.001000	.....	.....	
10,200	51,000	.007250	.001250	.....	.....	
10,400	52,000	.008150	.000900	.....	.....	
10,600	53,000	.009250	.001100	.....	.....	
10,800	54,000	.010250	.001000	.....	.....	
11,000	55,000	.011250	.001000	.....	.....	
11,200	56,000	.011950	.000700	.....	.....	
11,400	57,000	.012800	.000850	.....	.....	
11,600	58,000	.014350	.001550	.....	.....	
11,800	59,000	.015500	.001150	.....	.....	
12,000	60,000	.016450	.000950	.....	.....	
12,400	62,000	.018750	.002300	.....	.....	
12,800	64,000	.021050	.002300	.....	.....	
13,200	66,000	.023750	.002700	.....	.....	
13,600	68,000	.026750	.003000	.....	.....	
14,000	70,000	.030600	.003850	.....	.....	
14,400	72,000	.034500	.003900	.....	.....	
14,800	74,000	.038000	.003500	.....	.....	
15,200	76,000	.043000	.005000	.....	.....	
15,600	78,000	.048500	.005500	.....	.....	
16,000	80,000	.057500	.009000	.....	.....	
16,400	82,000	.0650	.007500	.....	.....	
16,800	84,000	.0900	.0250	.....	.....	
17,140	85,700	.1400	.0500	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	85,700
Elastic limit per square inch of original section.....	do ..	46,000
Elongation per inch after rupture.....	inch..	0.2350
Elongation per inch under strain at elastic limit	do....	.001850
Reduction in diameter at point of rupture	do....	.155
Reduction in area after rupture, per centum of original section.....		51.9
Position of rupture.....	$\frac{3}{4}$ inch from neck	
Character of broken surface	silky, traces of granulation	
Elongation of inch sections.....	".35*, ".12	

No. 622.

Marks, ³²T₅
B T₃

Length, 3''⁸⁶².

Diameter, ''⁷⁹⁸.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000500	.000200	0.	.....	
10,000	20,000	.000750	.000250	0.	.....	
12,500	25,000	.000850	.000100	0.	.....	
15,000	30,000	.001000	.000150	0.	.....	
17,500	35,000	.001200	.000200	0.	.....	
20,000	40,000	.001350	.000150	0.	.....	
20,500	41,000	.001450	.000100	.....	.....	
21,000	42,000	.001500	.000050	.....	.....	
21,500	43,000	.001500	0.	.....	.....	
22,000	44,000	.001500	0.	.....	.....	
22,500	45,000	.001500	0.	0.	.....	
23,000	46,000	.001550	.000050	.....	.....	
23,500	47,000	.001600	.000050	.....	.....	
24,000	48,000	.001650	.000050			Elastic limit.
24,500	49,000	.007250	.005600	.....	.....	
25,000	50,000	.007650	.000400	.005850	.005850	Ultimate strength.
46,800	93,600	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....	pounds..	48,000
Compression per inch under stress at elastic limit.....	inch..	.001650
Ultimate strength per square inch of original section.....	pounds..	93,600
Manner of failure.....	triple flexure	

No. 2242.

Marks, $^{32}T_5$
 $M T_1$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001450	.000250	0.	.....	
9,200	46,000	.001500	.000050	.....	.....	
9,400	47,000	.001550	.000050	.....	.....	
9,600	48,000	.001600	.000050	.....	.....	
9,800	49,000	.001700	.000100	.....	.....	
10,000	50,000	.001700	0.	0.	.....	
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001750	0.	.....	.....	
10,600	53,000	.001800	.000050	.....	.....	
10,800	54,000	.001850	.000050	.....	.....	
11,000	55,000	.001900	.000050			Elastic limit.
11,200	56,000	.012000	.000100	.....	.....	
11,400	57,000	.013000	.001050	.....	.....	
11,600	58,000	.013650	.000650	.....	.....	
11,800	59,000	.014700	.001050	.....	.....	
12,000	60,000	.015800	.001100	.....	.....	
12,400	62,000	.018750	.002950	.....	.....	
12,800	64,000	.021300	.002550	.....	.....	
13,200	66,000	.024700	.003400	.....	.....	
13,600	68,000	.027500	.002800	.....	.....	
14,000	70,000	.031150	.003650	.....	.....	
14,400	72,000	.035250	.004100	.....	.....	
14,800	74,000	.039550	.004300	.....	.....	
15,200	76,000	.044250	.004700	.....	.....	
15,600	78,000	.051500	.007250	.....	.....	
16,000	80,000	.060500	.009000	.....	.....	
16,400	82,000	.0700	.0095	.....	.....	
16,800	84,000	.1100	.0400			Tensile strength.
16,900	84,500	.1250	.0150	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	84,500
Elastic limit per square inch of original section.....	do ..	55,000
Elongation per inch after rupture.....	inch..	0.2250
Elongation per inch under strain at elastic limit.....	do....	.001900
Reduction in diameter at point of rupture.....	do....	.164
Reduction in area after rupture, per centum of original section.....		54.6
Position of rupture.....	$\frac{1}{2}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".35*, ".10	

No. 2243.

Marks, ³²T₅
M T₂

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001500	.000200	0.	.....	
10,000	50,000	.001650	.000150	0.	.....	
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.001800	.000050	.....	.....	Elastic limit.
10,800	54,000	.006400	.004600	.....	.....	
11,000	55,000	.009050	.002650	.....	.....	
11,200	56,000	.010000	.000950	.....	.....	
11,400	57,000	.011250	.001250	.....	.....	
11,600	58,000	.012250	.001000	.....	.....	
11,800	59,000	.013250	.001000	.....	.....	
12,000	60,000	.014500	.001250	.....	.....	
12,400	62,000	.017000	.002500	.....	.....	
12,800	64,000	.019250	.002250	.....	.....	
13,200	66,000	.021750	.002500	.....	.....	
13,600	68,000	.024650	.002900	.....	.....	
14,000	70,000	.027750	.003100	.....	.....	
14,400	72,000	.032000	.004250	.....	.....	
14,800	74,000	.035750	.003750	.....	.....	
15,200	76,000	.040000	.004250	.....	.....	
15,600	78,000	.045750	.005750	.....	.....	
16,000	80,000	.053000	.007250	.....	.....	
16,400	82,000	.062500	.009500	.....	.....	
16,800	84,000	.0800	.0175	.....	.....	
17,200	86,000	.1100	.0300	.....	.....	
17,210	86,050	.1350	.0250	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	86,050
Elastic limit per square inch of original section	do.....	53,000
Elongation per inch after rupture	inch..	0.2050
Elongation per inch under strain at elastic limit	do.....	.001800
Reduction in diameter at point of rupture	do.....	.145
Reduction in area after rupture, per centum of original section		49.1
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections	".32*, ".09	

No. 1693.

Marks, $\frac{32}{B} T_6$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001050	.000100	0.	.....	
8,000	40,000	.001250	.000200	0.	.....	
9,000	45,000	.001350	.000100	0.	.....	
10,000	50,000	.001550	.000200	0.		Elastic limit.
10,200	51,000	.001550	0.	.....	.....	
10,400	52,000	.001600	.000050	.....	.....	
10,600	53,000	.001650	.000050	.....	.....	
10,800	54,000	.001700	.000050	.....	.....	
11,000	55,000	.001900	.000200	.000150	.000150	
11,200	56,000	.002450	.000550	.....	.....	
11,400	57,000	.004000	.001550	.....	.....	
11,600	58,000	.005850	.001850	.....	.....	
11,800	59,000	.006700	.000850	.....	.....	
12,000	60,000	.008050	.001350	.005850	.005700	Tensile strength.
12,400	62,000	.010600	.001550	.....	.....	
12,800	64,000	.012750	.002150	.....	.....	
13,200	66,000	.014900	.002150	.....	.....	
13,600	68,000	.017550	.002650	.....	.....	
14,000	70,000	.020100	.002550	.....	.....	
14,400	72,000	.023050	.002950	.....	.....	
14,800	74,000	.027000	.003950	.....	.....	
15,200	76,000	.030500	.003500	.....	.....	
15,600	78,000	.034500	.004000	.....	.....	
16,000	80,000	.037600	.003100			
16,400	82,000	.043000	.005400	.....	.....	
16,800	84,000	.050000	.007000	.....	.....	
17,200	86,000	.059000	.009000	.....	.....	
17,600	88,000	.072500	.013500			
17,870	89,350	.1150	.0425	.....	.....	

General summary.

Specific gravity.....	7.8702
Tensile strength per square inch of original section.....	pounds.. 89.350
Elastic limit per square inch of original section.....	do... 54.000
Elongation per inch after rupture.....	inch.. 0.2100
Elongation per inch under strain at elastic limit.....	do... .001700
Reduction in diameter at point of rupture.....	do.... .114
Reduction in area after rupture, per centum of original section.....	40.3
Position of rupture.....	$\frac{3}{8}$ inch from middle of stem
Character of broken surface.....	granular at circumference, dull center
Elongation of inch sections.....	".30*, ".12

No. 1694.

Marks, ³²T₆
B T₂

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000550	.000200	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001000	.000100	0.	.....	
8,000	40,000	.001200	.000200	0.	.....	
9,000	45,000	.001350	.000150	0.	.....	
10,000	50,000	.001550	.000200	0.		Elastic limit.
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001650	0.	.....	.....	
10,800	54,000	.001700	.000050	.....	.....	
11,000	55,000	.001700	0.	0.	.....	
11,200	56,000	.001800	.000100	.....	.....	
11,400	57,000	.002450	.000650	.....	.....	
11,600	58,000	.003550	.001100	.....	.....	
11,800	59,000	.006150	.002600	.....	.....	
12,000	60,000	.007400	.001250	.005150	.005150	Tensile strength.
12,400	62,000	.009150	.001750	.....	.....	
12,800	64,000	.011650	.002500	.....	.....	
13,200	66,000	.014200	.002550	.....	.....	
13,600	68,000	.016700	.002500	.....	.....	
14,000	70,000	.019150	.002450	.....	.....	
14,400	72,000	.022250	.003100	.....	.....	
14,800	74,000	.025150	.002900	.....	.....	
15,200	76,000	.028400	.003250	.....	.....	
15,600	78,000	.032250	.003850	.....	.....	
16,000	80,000	.037600	.005350			
16,400	82,000	.041500	.003900	.....	.....	
16,800	84,000	.047800	.006300	.....	.....	
17,200	86,000	.056250	.008450	.....	.....	
17,600	88,000	.073500	.017250			
17,990	89,950	.1250	.0515	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	89,950
Elastic limit per square inch of original section.....	do ..	56,000
Elongation per inch after rupture.....	inch..	0.2550
Elongation per inch under strain at elastic limit	do ..	.001800
Reduction in diameter at point of rupture	do ..	.154
Reduction in area after rupture, per centum of original section.....		51.9
Position of rupture.....	at middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".30", ".21	

No. 577.

Marks, $\frac{32}{B} \frac{T_6}{T_3}$

Length, 3'' .998.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
2,000	10,000	0.	.000150	0.	.....	
7,500	15,000	.000150	.000150	0.	.....	
20,000	40,000	.001250	.001100	.....	.....	
20,500	41,000	.001300	.000050	.....	.....	
21,000	42,000	.001350	.000050	.....	.....	
21,500	43,000	.001350	0.	.....	.....	
22,000	44,000	.001400	.000050	.....	.....	
22,500	45,000	.001450	.000050	.000050	.000050	
23,000	46,000	.001450	0.	.....	.....	
23,500	47,000	.001500	.000050	.....	.....	
24,000	48,000	.001500	0.	.....	.....	
24,500	49,000	.001550	.000050	.....	.....	
25,000	50,000	.001600	.000050	.000050	0.	
25,500	51,000	.001650	.000050	.....	.....	
26,000	52,000	.001700	.000050	.....	.....	
26,500	53,000	.001750	.000050	.....	.....	
27,000	54,000	.001750	0.			Elastic limit.
27,500	55,000	.002550	.000800	.000650	.000600	
28,000	56,000	.002950	.000400	.....	.....	
28,500	57,000	.003400	.000450	.....	.....	
29,000	58,000	.004100	.000700	.....	.....	
29,500	59,000	.005050	.000950			Ultimate strength.
30,000	60,000	.006050	.001000	.008900	.008250	
48,300	96,600	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 54,000
 Compression per inch under stress at elastic limit inch.. 0.001750
 Ultimate strength per square inch of original section pounds.. 96,600
 Manner of failure triple flexure

No. 1695.

Marks, $\frac{32}{M} T_6$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000400	.000200	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001200	.000200	0.	.....	
9,000	45,000	.001300	.000100	0.	.....	
10,000	50,000	.001450	.000150	0.		Elastic limit.
10,200	51,000	.001500	.000050	.....	.....	
10,400	52,000	.004100	.002600	.....	.....	
10,600	53,000	.005600	.001500	.....	.....	
10,800	54,000	.006550	.000950	.....	.....	
11,000	55,000	.007700	.001150	.005600	.005600	
11,200	56,000	.008650	.000950	.....	.....	
11,400	57,000	.009650	.001000	.....	.....	
11,600	58,000	.010500	.000850	.....	.....	
11,800	59,000	.011650	.001150	.....	.....	
12,000	60,000	.012750	.001100	.010350	.004750	Tensile strength.
12,400	62,000	.014800	.002050	.....	.....	
12,800	64,000	.017400	.002600	.....	.....	
13,200	66,000	.019600	.002200	.....	.....	
13,600	68,000	.022650	.003050	.....	.....	
14,000	70,000	.025600	.002950	.....	.....	
14,400	72,000	.028900	.003300	.....	.....	
14,800	74,000	.032500	.003600	.....	.....	
15,200	76,000	.036850	.004350	.....	.....	
15,600	78,000	.041500	.004650	.....	.....	
16,000	80,000	.047250	.005750			
16,400	82,000	.056750	.009500	.....	.....	
16,800	84,000	.066800	.010050	.....	.....	
17,200	86,000	.0850	.0182			
17,420	87,100	.1300	.0450	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	87,100
Elastic limit per square inch of original section.....	do....	51,000
Elongation per inch after rupture.....	inch..	0.2450
Elongation per inch under strain at elastic limit.....	do....	.001500
Reduction in diameter at point of rupture.....	do....	.154
Reduction in area after rupture, per centum of original section.....		51.9
Position of rupture.....	$\frac{3}{8}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".38", ".11	

No. 1696.

Marks, $\frac{32}{M} T_6$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001400	.000150	0.	.....	
10,000	50,000	.001550	.000150	0.	.....	
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	Elastic limit.
10,800	54,000	.001950	.000250	.....	.....	
11,000	55,000	.003050	.001100	.001150	.001150	
11,200	56,000	.004500	.001450	.....	.....	
11,400	57,000	.006150	.001650	.....	.....	
11,600	58,000	.007150	.001000	.....	.....	
11,800	59,000	.008350	.001200	.....	.....	
12,000	60,000	.009350	.001000	.007150	.006000	
12,400	62,000	.011700	.002350	.....	.....	
12,800	64,000	.013750	.002050	.....	.....	
13,200	66,000	.016500	.002750	.....	.....	
13,600	68,000	.018700	.002200	.....	.....	
14,000	70,000	.021250	.002550	.....	.....	
14,400	72,000	.024500	.003250	.....	.....	
14,800	74,000	.027700	.003200	.....	.....	
15,200	76,000	.031000	.003300	.....	.....	
15,600	78,000	.034750	.003750	.....	.....	
16,000	80,000	.039350	.004600	.....	.....	
16,400	82,000	.045750	.006400	.....	.....	
16,800	84,000	.052750	.007000	.....	.....	
17,200	86,000	.062500	.009750	.....	.....	
17,600	88,000	.079500	.017000	.....	.....	
17,860	89,300	.1300	.0505	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pound ..	89,300
Elastic limit per square inch of original section.....	do ..	53,000
Elongation per inch after rupture.....	inch..	0.2350
Elongation per inch under strain at elastic limit.....	do....	.001700
Reduction in diameter at point of rupture.....	do....	.154
Reduction in area after rupture, per centum of original section.....		51.9
Position of rupture.....	".1 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".32* ".15	

No. 2200.

Marks, ³²T₇
BT₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000700	.000100	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001200	.000200	0.	.....	
9,000	45,000	.001400	.000200	0.	.....	
10,000	50,000	.001550	.000150	0.		
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.001700	0.	.....	.....	
11,000	55,000	.001750	.000050	.....	.....	
11,200	56,000	.001800	.000050	.....	.....	
11,400	57,000	.001850	.000050	.....	.....	
11,600	58,000	.001900	.000050	.....	.....	
11,800	59,000	.002200	.000300			Elastic limit.
12,000	60,000	.003200	.001000	.....	.....	
12,200	61,000	.004600	.001400	.....	.....	
12,400	62,000	.007100	.002500	.....	.....	
12,600	63,000	.008450	.001350	.....	.....	
12,800	64,000	.009600	.001150	.....	.....	
13,000	65,000	.010650	.001050	.....	.....	
13,200	66,000	.011850	.001200	.....	.....	
13,400	67,000	.012900	.001050	.....	.....	
13,600	68,000	.014050	.001150	.....	.....	
13,800	69,000	.015250	.001200			
14,000	70,000	.016500	.001250	.....	.....	
14,400	72,000	.019000	.002500	.....	.....	
14,800	74,000	.021500	.002500	.....	.....	
15,200	76,000	.024700	.003200	.....	.....	
15,600	78,000	.028000	.003300	.....	.....	
16,000	80,000	.032000	.0040 0	.....	.....	
16,400	82,000	.036400	.004400	.....	.....	
16,800	84,000	.040600	.004200	.....	.....	
17,200	86,000	.046150	.005550			Tensile strength.
17,600	88,000	.053000	.006850	.....	.....	
18,000	90,000	.0650	.0120	.....	.....	
18,400	92,000	.0950	.0300	.....	.....	
18,490	92,450	.1150	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	92,450
Elastic limit per square inch of original section	do....	58,000
Elongation per inch after rupture	inch..	0.2350
Elongation per inch under strain at elastic limit	do....	.001900
Reduction in diameter at point of rupture	do....	.145
Reduction in area after rupture, per centum of original section		49.1
Position of rupture		$\frac{3}{4}$ inch from neck
Character of broken surface		silky center, granular at circumference
Elongation of inch sections		".12, ".35*

No. 2201.

Marks, $\frac{32}{B} \frac{T_7}{T_2}$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001500	.000150	0.	.....	
10,000	50,000	.001650	.000150	0.		Elastic limit.
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.001800	.000050	.....	.....	
10,800	54,000	.001850	.000050	.....	.....	
11,000	55,000	.001900	.000050	.....	.....	
11,200	56,000	.001900	0.	.....	.....	
11,400	57,000	.001950	.000050	.....	.....	
11,600	58,000	.002100	.000150	.....	.....	
11,800	59,000	.002550	.000450	.....	.....	
12,000	60,000	.003000	.000450	.000950	.000950	Tensile strength.
12,400	62,000	.004250	.001250	.....	.....	
12,800	64,400	.007100	.002850	.....	.....	
13,200	66,000	.010600	.003500	.....	.....	
13,600	68,000	.013250	.002650	.....	.....	
14,000	70,000	.015900	.002650	.....	.....	
14,400	72,000	.018000	.002100	.....	.....	
14,800	74,000	.020600	.002600	.....	.....	
15,200	76,000	.024000	.003400	.....	.....	
15,600	78,000	.027500	.003500	.....	.....	
16,000	80,000	.031000	.003500			Tensile strength.
16,400	82,000	.035000	.004000	.....	.....	
16,800	84,000	.039750	.004750	.....	.....	
17,200	86,000	.045600	.005850	.....	.....	
17,600	88,000	.052500	.006900	.....	.....	
18,000	90,000	.0650	.0125	.....	.....	
18,390	91,950	.1000	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	91,950
Elastic limit per square inch of original section.....	do ..	57,000
Elongation per inch after rupture.....	inch..	0.1700
Elongation per inch under strain at elastic limit.....	do ..	.001950
Reduction in diameter at point of rupture.....	do ..	.134
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture	".30 from neck	
Character of broken surface.....	silky, 50 per cent.; granular, 50 per cent.	
Elongation of inch sections.....	".26*, ".08	

No. 615.

Marks, ³²T₇
B T₃

Length, 4".

Diameter, ".799.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000500	.000100	0.	.....	
12,500	25,000	.000650	.000150	0.	.....	
15,000	30,000	.000800	.000150	— .000050	— .000050	
17,500	35,000	.000950	.000150	— .000050	0.	
20,000	40,000	.001100	.000150	— .000050	0.	
22,500	45,000	.001300	.000200	— .000050	0.	
23,000	46,000	.001350	.000050	.....	.....	
23,500	47,000	.001400	.000050	.....	.....	
24,000	48,000	.001450	.000050	.....	.....	
24,500	49,000	.001500	.000050	.....	.....	
25,000	50,000	.001550	.000050	— .000100	— .000050	
25,500	51,000	.001600	.000050	.....	.....	
26,000	52,000	.001650	.000050	.....	.....	
26,500	53,000	.001700	.000050	.....	.....	
27,000	54,000	.001750	.000050			Elastic limit.
27,500	55,000	.001900	.000150	.000100	.000200	
28,000	56,000	.002050	.000150	.....	.....	
28,500	57,000	.002350	.000300	.....	.....	
29,000	58,000	.003000	.000650	.....	.....	
29,500	59,000	.004100	.001100			Ultimate strength.
30,000	60,000	.005750	.001650	.003600	.003500	
47,600	95,200	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 54,000
 Compression per inch under stress at elastic limit..... inch.. 0.001750
 Ultimate strength per square inch of original section..... pounds.. 95,200
 Manner of failure..... triple flexure

No. 2202

Marks, ³²T₇
M T₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000700	.000100	0.	.....	
6,000	30,000	.000950	.000250	0.	.....	
7,000	35,000	.001150	.000200	0.	.....	
8,000	40,000	.001250	.000100	0.	.....	
9,000	45,000	.001400	.000150	0.	.....	
10,000	50,000	.001600	.000200	0.		Elastic limit.
10,200	51,000	.008750	.007150	.....	.....	
10,400	52,000	.009500	.000750	.....	.....	
10,600	53,000	.010500	.001000	.....	.....	
10,800	54,000	.011650	.001150	.....	.....	
11,000	55,000	.012500	.000850	.....	.....	
11,200	56,000	.013600	.001100	.....	.....	
11,400	57,000	.014850	.001250	.....	.....	
11,600	58,000	.016000	.001150	.....	.....	
11,800	59,000	.017250	.001250	.....	.....	
12,000	60,000	.018750	.001500			Tensile strength.
12,400	62,000	.021300	.002650	.....	.....	
12,800	64,000	.024250	.002950	.....	.....	
13,200	66,000	.027000	.002750	.....	.....	
13,600	68,000	.031000	.004000	.....	.....	
14,000	70,000	.034500	.003500	.....	.....	
14,400	72,000	.039000	.004500	.....	.....	
14,800	74,000	.044500	.005500	.....	.....	
15,200	76,000	.051000	.006500	.....	.....	
15,600	78,000	.0600	.0090	.....	.....	
16,000	80,000	.0700	.0100	.....	.....	
16,400	82,000	.1000	.0300	.....	.....	
16,620	83,100	.1350	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	83,100
Elastic limit per square inch of original section	do ..	50,000
Elongation per inch after rupture	inch..	0.2400
Elongation per inch under strain at elastic limit	do....	.001600
Reduction in diameter at point of rupture	do....	.145
Reduction of area after rupture, per centum of original section		49.1
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections	"11, ".37*	

No. 2203.

Marks, ³²T₇
_M T₂

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	.000050	.000050	
2,000	10,000	.000450	.000250	.000050	0.	
3,000	15,000	.000600	.000150	.000050	0.	
4,000	20,000	.000750	.000150	.000050	0.	
5,000	25,000	.000950	.000200	.000050	0.	
6,000	30,000	.001100	.000150	.000050	0.	
7,000	35,000	.001250	.000150	.000100	0.	
8,000	40,000	.001400	.000150	.000100	0.	
9,000	45,000	.001550	.000150	.000100	0.	
9,200	46,000	.001550	0.			Elastic limit.
9,400	47,000	.001600	.000050			
9,600	48,000	.001650	.000050			
9,800	49,000	.001700	.000050			
10,000	50,000	.001750	.000050	.000100	.0	
10,200	51,000	.001800	.000050			
10,400	52,000	.001850	.000050			
10,600	53,000	.006200	.004350			
10,800	54,000	.009100	.002900			
11,000	55,000	.010000	.000900			
11,200	56,000	.011000	.001000			Tensile strength.
11,400	57,000	.012050	.001050			
11,600	58,000	.012900	.000850			
11,800	59,000	.014050	.001150			
12,000	60,000	.015150	.001100			
12,400	62,000	.017300	.002150			
12,800	64,000	.019800	.002500			
13,200	66,000	.022500	.002700			
13,600	68,000	.026000	.003500			
14,000	70,000	.029000	.003000			
14,400	72,000	.032700	.003700			
14,800	74,000	.037050	.004350			
15,200	76,000	.041500	.004450			
15,600	78,000	.047500	.006000			
16,000	80,000	.055000	.007500			
16,400	82,000	.0650	.0100			
16,800	84,000	.0800	.0150			
17,200	86,000	.1100	.0300			

General summary.

Tensile strength per square inch of original section.....	pounds..	86,000
Elastic limit per square inch of original section	do	52,000
Elongation per inch after rupture	inch..	0.2250
Elongation per inch under strain at elastic limit	do	.001850
Reduction in diameter at point of rupture	do	.144
Reduction in area after rupture, per centum of original section		49.1
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections	.34*, ".11	

No. 1659.

Marks, ³²T₈
B T₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000450	.000100	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001500	.000150	.....	.....	
9,800	49,000	.001650	.000150			Elastic limit.
10,000	50,000	.002100	.000450	.000450	.000450	
10,200	51,000	.003850	.001750	.....	.....	
10,400	52,000	.005100	.001250	.....	.....	
10,600	53,000	.006100	.001000	.....	.....	
10,800	54,000	.007000	.000900	.....	.....	
11,000	55,000	.007900	.000900	.005850	.005400	
11,200	56,000	.008550	.000650	.....	.....	
11,400	57,000	.009750	.001200	.....	.....	
11,600	58,000	.010250	.000500	.....	.....	
11,800	59,000	.011250	.001000			Tensile strength.
12,000	60,000	.012150	.000900	.009850	.004000	
12,400	62,000	.014150	.002000	.....	.....	
12,800	64,000	.016250	.002100	.....	.....	
13,200	66,000	.018500	.002250	.....	.....	
13,600	68,000	.021000	.002500	.....	.....	
14,000	70,000	.023400	.002400	.....	.....	
14,400	72,000	.025950	.002550	.....	.....	
14,800	74,000	.029000	.003050	.....	.....	
15,200	76,000	.031800	.002800	.....	.....	
15,600	78,000	.035000	.003200			Tensile strength.
16,000	80,000	.039300	.004300	.....	.....	
16,400	82,000	.044150	.004850	.....	.....	
16,800	84,000	.049800	.005650	.....	.....	
17,200	86,000	.057500	.007700	.....	.....	
17,600	88,000	.067000	.009500	.....	.....	
18,000	90,000	.0850	.0180	.....	.....	
18,320	91,600	.1250	.0400	.....	.....	

General summary.

Specific gravity.....	7.8730
Tensile strength per square inch of original section.....pounds..	91,600
Elastic limit per square inch of original section.....do.....	49,000
Elongation per inch after rupture.....inch..	0.2250
Elongation per inch under strain at elastic limit.....do.....	.001650
Reduction in diameter at point of rupture.....do.....	.135
Reduction in area after rupture, per centum of original section.....	46.2
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem
Character of broken surface.....	silky
Elongation of inch section.....	".32", ".13

No. 1660.

Marks, $\frac{32}{B} T_8$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001450	.000200	0.	.....	
9,600	48,000	.001600	.000150			Elastic limit.
9,800	49,000	.001650	.000050	.....	.....	
10,000	50,000	.002150	.000500	.000600	.000600	
10,200	51,000	.002650	.000500	.....	.....	
10,400	52,000	.003100	.000450	.....	.....	
10,600	53,000	.003850	.000750	.....	.....	
10,800	54,000	.004950	.001100	.....	.....	
11,000	55,000	.005850	.000900	.003850	.003250	
11,200	56,000	.006800	.000950	.....	.....	
11,400	57,000	.007800	.001000	.....	.....	
11,600	58,000	.008600	.000800			Tensile strength.
11,800	59,000	.009700	.001100	.....	.....	
12,000	60,000	.010600	.000900	.008250	.004400	
12,400	62,000	.012750	.002150	.....	.....	
12,800	64,000	.014600	.001850	.....	.....	
13,200	66,000	.016850	.002250	.....	.....	
13,600	68,000	.019750	.002900	.....	.....	
14,000	70,000	.022250	.002500	.....	.....	
14,400	72,000	.025000	.002750	.....	.....	
14,800	74,000	.027500	.002500	.....	.....	
15,200	76,000	.030750	.003250	.....	.....	
15,600	78,000	.034250	.003500	.....	.....	
16,000	80,000	.038000	.003750	.....	.....	
16,400	82,000	.043000	.005000	.....	.....	
16,800	84,000	.048250	.005250	.....	.....	
17,200	86,000	.055500	.007250	.....	.....	
17,600	88,000	.066000	.010500	.....	.....	
18,000	90,000	.081250	.015250	.....	.....	
18,260	91,300	.1100	.028750	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	91,300
Elastic limit per square inch of original section	do	49,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit	do	.001650
Reduction in diameter at point of rupture	do	.125
Reduction in area after rupture, per centum of original section .....	.....	43.3
Position of rupture	§ inch from neck	
Character of broken surface .....	.....	silky
Elongation of inch sections .....	.....	".31*, ".09

H. Ex. 31—5

No. 569.

Marks, $\frac{32}{B} T_8$

Length, 3'' .998.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000350	.000100	0.	.....	
10,000	20,000	.000500	.000150	0.	.....	
12,500	25,000	.000650	.000150	0.	.....	
15,000	30,000	.000800	.000150	0.	.....	
17,500	35,000	.000950	.000150	0.	.....	
20,000	40,000	.001100	.000150	.000000	.000000	
22,500	45,000	.001250	.000150	.....	.....	
24,000	48,000	.001200	.000050	.....	.....	
24,500	49,000	.001100	.000100	.....	.....	
25,000	50,000	.000950	.000150	— .000450	— .000450	Deflects convex on the micrometer side of the specimen.
25,500	51,000	.000600	.000250	.....	.....	
26,000	52,000	.000350	.000250	.....	.....	
26,500	53,000	.000150	.000200	.....	.....	
27,000	54,000	.000100	.000050			Ultimate strength.
27,500	55,000	.000100	0.	— .001450	— .001000	
47,650	95,300	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 48,000
 Compression per inch under stress at elastic limit.....inch.. 0.001200
 Ultimate strength per square inch of original section.....pounds.. 95,300
 Manner of failure.....triple flexure

No. 1661.

Marks, $\frac{32}{M T_8}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001500	.000250	0.	.....	
9,200	46,000	.001500	0.			Elastic limit.
9,400	47,000	.001550	.000050	.....	.....	
9,600	48,000	.001550	0.	.....	.....	
9,800	49,000	.001600	.000050	.....	.....	
10,000	50,000	.001650	.000050	0.	.....	
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.001850	.000100	.....	.....	
10,800	54,000	.002250	.000400	.....	.....	
11,000	55,000	.003800	.001550	.001950	.001950	
11,200	56,000	.004550	.000750			Tensile strength.
11,400	57,000	.006250	.001700	.....	.....	
11,600	58,000	.008000	.001750	.....	.....	
11,800	59,000	.009100	.001100	.....	.....	
12,000	60,000	.009650	.000550	.007450	.005500	
12,400	62,000	.012150	.002500	.....	.....	
12,800	64,000	.014350	.002200	.....	.....	
13,200	66,000	.017150	.002800	.....	.....	
13,600	68,000	.020150	.003000	.....	.....	
14,000	70,000	.023150	.003000	.....	.....	
14,400	72,000	.026250	.003100			Tensile strength.
14,800	74,000	.029750	.003500	.....	.....	
15,200	76,000	.034000	.004250	.....	.....	
15,600	78,000	.038750	.004750	.....	.....	
16,000	80,000	.044500	.005750	.....	.....	
16,400	82,000	.052000	.007500	.....	.....	
16,800	84,000	.061600	.009600	.....	.....	
17,200	86,000	.081500	.019900	.....	.....	
17,470	87,350	.1300	.0485	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	87,350
Elastic limit per square inch of original section	do	53,000
Elongation per inch after rupture	inch..	0.2200
Elongation per inch under strain at elastic limit	do	.001850
Reduction in diameter at point of rupture	do	.135
Reduction in area after rupture, per centum of original section		46.2
Position of rupture	".65 from neck	
Character of broken surface	silky	
Elongation of inch sections	".33*, ".11	

No. 1662.

Marks, ³²T_s
M T₂

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000700	.000150	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001450	.000150	0.	.....	
9,200	46,000	.001450	0.	.....	.....	
9,400	47,000	.001500	.000050	.....	.....	
9,600	48,000	.001500	0.	.....	.....	
9,800	49,000	.001550	.000050	.....	.....	
10,000	50,000	.001600	.000050	0.	.....	
10,200	51,000	.001600	0.	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.001800	.000100			Elastic limit.
11,000	55,000	.002150	.000350	.000400	.000400	
11,200	56,000	.002900	.000750	.....	.....	
11,400	67,000	.003500	.000600	.....	.....	
11,600	58,000	.004200	.000700	.....	.....	
11,800	59,000	.006450	.002250	.....	.....	
12,000	60,000	.007900	.001450	.005800	.005400	
12,400	62,000	.010350	.002450	.....	.....	
12,800	64,000	.012150	.001800	.....	.....	
13,200	66,000	.015000	.002850	.....	.....	
13,600	68,000	.017600	.002600			Tensile strength.
14,000	70,000	.020600	.003000	.....	.....	
14,400	72,000	.023500	.002900	.....	.....	
14,800	74,000	.026700	.003200	.....	.....	
15,200	76,000	.030250	.003550	.....	.....	
15,600	78,000	.034500	.004250	.....	.....	
16,000	80,000	.039350	.004850	.....	.....	
16,400	82,000	.045600	.006250	.....	.....	
16,800	84,000	.052750	.007150	.....	.....	
17,200	86,000	.063750	.011000	.....	.....	
17,600	88,000	.083750	.020000	.....	.....	
17,740	88,700	.1300	.046250	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	88,700
Elastic limit per square inch of original section.....	do. . .	54,000
Elongation per inch after rupture	inch..	0.2450
Elongation per inch under strain at elastic limit	do. . .	.001800
Reduction in diameter at point of rupture	do. . .	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	".20 from middle of stem	
Character of broken surface.....	.....	silky
Elongation of inch sections .....	.....	".30*, ".19

No. 2204.

Marks, $\frac{32}{B} T_1$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.	.....	
2,000	10,000	.000300	.000100	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001200	.000250	0.	.....	
8,000	40,000	.001300	.000100	0.	.....	
9,000	45,000	.001450	.000150	0.	.....	
10,000	50,000	.001650	.000200	0.		Elastic limit.
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.001800	.000050	.....	.....	
10,800	54,000	.001800	0.	.....	.....	
11,000	55,000	.001850	.000050	.....	.....	
11,200	56,000	.001900	.000050	.....	.....	
11,400	57,000	.002050	.000150	.....	.....	
11,600	58,000	.002250	.000200	.....	.....	
11,800	59,000	.002800	.000550	.....	.....	
12,000	60,000	.003800	.001000			Tensile strength.
12,200	61,000	.005250	.001450	.....	.....	
12,400	62,000	.007300	.002050	.....	.....	
12,600	63,000	.008600	.001300	.....	.....	
12,800	64,000	.010050	.001450	.....	.....	
13,000	65,000	.011500	.001450	.....	.....	
13,200	66,000	.013000	.001500	.....	.....	
13,400	67,000	.014500	.001500	.....	.....	
13,600	68,000	.015500	.001000	.....	.....	
13,800	69,000	.016750	.001250	.....	.....	
14,000	70,000	.017750	.001000			Tensile strength.
14,400	72,000	.020150	.002400	.....	.....	
14,800	74,000	.023500	.003350	.....	.....	
15,200	76,000	.026500	.003000	.....	.....	
15,600	78,000	.030000	.003500	.....	.....	
16,000	80,000	.034100	.004100	.....	.....	
16,400	82,000	.039000	.004900	.....	.....	
16,800	84,000	.044750	.005750	.....	.....	
17,200	86,000	.053000	.008250	.....	.....	
17,600	88,000	.0600	.0070	.....	.....	
18,000	90,000	.0950	.0350	.....	.....	
18,090	90,450	.1150	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	90,450
Elastic limit per square inch of original section.....	do....	56,000
Elongation per inch after rupture.....	inch..	0.2450
Elongation per inch under strain at elastic limit	do....	.001900
Reduction in diameter at point of rupture	do....	.134
Reduction in area after rupture, per centum of original section		46.2
Position of rupture	at middle of stem	
Character of broken surface	granular, 60 per centum; silky, 40 per centum	
Elongation of inch sections	".25*, ".24*	

No. 2205.

Marks, ³²T₂
B T₂

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001450	.000150	0.	.....	
10,000	50,000	.001600	.000150	0.		Elastic limit.
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001800	.000050	.....	.....	
11,000	55,000	.001850	.000050	.....	.....	
11,200	56,000	.001900	.000050	.....	.....	
11,400	57,000	.001950	.000050	.....	.....	
11,600	58,000	.002000	.000050	.....	.....	
11,800	59,000	.002100	.000100	.....	.....	
12,000	60,000	.002250	.000150	.....	.....	
12,200	61,000	.002750	.000500	.....	.....	
12,400	62,000	.004000	.001250	.....	.....	
12,600	63,000	.006200	.002200	.....	.....	
12,800	64,000	.007700	.001500	.....	.....	
13,000	65,000	.009000	.001300	.....	.....	
13,200	66,000	.010150	.001150	.....	.....	
13,400	67,000	.011500	.001350	.....	.....	
13,600	68,000	.012500	.001000	.....	.....	
13,800	69,000	.013500	.001000	.....	.....	
14,000	70,000	.014700	.001200			Tensile strength.
14,400	72,000	.017000	.002300	.....	.....	
14,800	74,000	.019500	.002500	.....	.....	
15,200	76,000	.022800	.003300	.....	.....	
15,600	78,000	.025650	.002850	.....	.....	
16,000	80,000	.029000	.003350	.....	.....	
16,400	82,000	.032800	.003800	.....	.....	
16,800	84,000	.037500	.004700	.....	.....	
17,200	86,000	.042500	.005000	.....	.....	
17,600	88,000	.051000	.008500	.....	.....	
18,000	90,000	.0600	.0090	.....	.....	
18,400	92,000	.0700	.0100	.....	.....	
18,610	93,050	.1300	.0600	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	93,050
Elastic limit per square inch of original section	do....	59,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit	do....	.002100
Reduction in diameter at point of rupture	do....	.124
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	at middle of stem	
Character of broken surface	granular, dull silky center	
Elongation of inch sections	".16, ".24*	

No. 616.

Marks, $\frac{32}{B} \frac{T_9}{T_3}$

Length, 3".998.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000750	.000200	0.	.....	
15,000	30,000	.000900	.000150	0.	.....	
17,500	35,000	.001050	.000150	0.	.....	
20,000	40,000	.001250	.000200	0.	.....	
22,500	45,000	.001400	.000150	0.	.....	
25,000	50,000	.001500	.000100	0.	.....	
25,500	51,000	.001500	0.	.....	.....	
26,000	52,000	.001550	.000050	.....	.....	
26,500	53,000	.001600	.000050	.....	.....	
27,000	54,000	.001700	.000100	.....	.....	
27,500	55,000	.001750	.000050	.000100	.000100	
28,000	56,000	.001750	0.	.....	.....	
28,500	57,000	.001800	.000050	.....	.....	
29,000	58,000	.001850	.000050	.....	.....	
29,500	59,000	.001800	.000050	.....	.....	
30,000	60,000	.001750	.000050	— .000100	.000200	
30,500	61,000	.001750	0.			Elastic limit.
31,000	62,000	.001800	.000050	.....	.....	
31,500	63,000	.002100	.000300	.....	.....	
32,000	64,000	.002500	.000400	.....	.....	
32,500	65,000	.003250	.000750	.001250	.001250	
33,000	66,000	.004100	.000850	.....	.....	
33,500	67,000	.005200	.001100	.....	.....	
34,000	68,000	.006500	.001300	.....	.....	
34,500	69,000	.007500	.001000	.....	.....	
35,000	70,000	.008500	.001000	.006250	.005000	Ultimate strength.
48,800	97,600	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 62,000
 Compression per inch under stress at elastic limit inch.. 0.001800
 Ultimate strength, per square inch of original section pounds.. 97,600
 Manner of failure triple flexure

No. 2205.

Marks, $\frac{32}{B} T_9$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001450	.000150	0.	.....	
10,000	50,000	.001600	.000150	0.	.....	
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001800	.000050	.....	.....	
11,000	55,000	.001850	.000050	.....	.....	
11,200	56,000	.001900	.000050	.....	.....	
11,400	57,000	.001950	.000050	.....	.....	
11,600	58,000	.002000	.000050	.....	.....	
11,800	59,000	.002100	.000100			Elastic limit.
12,000	60,000	.002250	.000150	.....	.....	
12,200	61,000	.002750	.000500	.....	.....	
12,400	62,000	.004000	.001250	.....	.....	
12,600	63,000	.006200	.002200	.....	.....	
12,800	64,000	.007700	.001500	.....	.....	
13,000	65,000	.009000	.001300	.....	.....	
13,200	66,000	.010150	.001150	.....	.....	
13,400	67,000	.011500	.001350	.....	.....	
13,600	68,000	.012500	.001000	.....	.....	
13,800	69,000	.013500	.001000	.....	.....	
14,000	70,000	.014700	.001200	.....	.....	
14,400	72,000	.017000	.002300	.....	.....	
14,800	74,000	.019500	.002500	.....	.....	
15,200	76,000	.022800	.003300	.....	.....	
15,600	78,000	.025650	.002850	.....	.....	
16,000	80,000	.029000	.003350	.....	.....	
16,400	82,000	.032800	.003800	.....	.....	
16,800	84,000	.037500	.004700	.....	.....	
17,200	86,000	.042500	.005000	.....	.....	
17,600	88,000	.051000	.008500	.....	.....	
18,000	90,000	.0600	.0090			Tensile strength.
18,400	92,000	.0700	.0100	.....	.....	
18,610	93,050	.1300	.0600	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	93,050
Elastic limit per square inch of original section	do....	59,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit	do....	.002100
Reduction in diameter at point of rupture	do....	.124
Reduction in area after rupture, per centum of original section		43.3
Position of rupture .....	.....	at middle of stem
Character of broken surface	granular, dull silky center	
Elongation of inch sections	"16, ".24*	

No. 616.

Marks, $\frac{32}{B} \frac{T_9}{T_3}$

Length, 3".998.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000750	.000200	0.	.....	
15,000	30,000	.000900	.000150	0.	.....	
17,500	35,000	.001050	.000150	0.	.....	
20,000	40,000	.001250	.000200	0.	.....	
22,500	45,000	.001400	.000150	0.	.....	
25,000	50,000	.001500	.000100	0.	.....	
25,500	51,000	.001500	0.	.....	.....	
26,000	52,000	.001550	.000050	.....	.....	
26,500	53,000	.001600	.000050	.....	.....	
27,000	54,000	.001700	.000100	.....	.....	
27,500	55,000	.001750	.000050	.000100	.000100	
28,000	56,000	.001750	0.	.....	.....	
28,500	57,000	.001800	.000050	.....	.....	
29,000	58,000	.001850	.000050	.....	.....	
29,500	59,000	.001800	.000050	.....	.....	
30,000	60,000	.001750	.000050	— .000100	.000200	Elastic limit.
30,500	61,000	.001750	0.	.....	.....	
31,000	62,000	.001800	.000050	.....	.....	
31,500	63,000	.002100	.000300	.....	.....	
32,000	64,000	.002500	.000400	.....	.....	
32,500	65,000	.003250	.000750	.001250	.001350	
33,000	66,000	.004100	.000850	.....	.....	
33,500	67,000	.005200	.001100	.....	.....	
34,000	68,000	.006500	.001300	.....	.....	
34,500	69,000	.007500	.001000	.....	.....	
35,000	70,000	.008500	.001000	.006250	.005000	Ultimate strength.
48,800	97,600	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 62,000
 Compression per inch under stress at elastic limit inch.. 0.001800
 Ultimate strength, per square inch of original section pounds.. 97,600
 Manner of failure triple flexure

No. 2206.

Marks, ³²T₉
M T₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001350	.000200	0.	.....	
9,000	45,000	.001550	.000200	0.	.....	
10,000	50,000	.001700	.000150	0.	.....	
10,200	51,000	.001700	0.	.....	.....	
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.001750	0.	.....	.....	
10,800	54,000	.001800	.000050	.....	.....	
11,000	55,000	.001850	.000050	.....	.....	
11,200	56,000	.001900	.000050			Elastic limit.
11,400	57,000	.002050	.000150	.....	.....	
11,600	58,000	.002250	.000200	.....	.....	
11,800	59,000	.003000	.000750	.....	.....	
12,000	60,000	.003900	.000900	.....	.....	
12,200	61,000	.005300	.001400	.....	.....	
12,400	62,000	.007250	.001950	.....	.....	
12,600	63,000	.008200	.000950	.....	.....	
12,800	64,000	.009250	.001050	.....	.....	
13,000	65,000	.011000	.001750	.....	.....	
13,200	66,000	.012200	.001200	.....	.....	
13,600	68,000	.014750	.002550	.....	.....	
14,000	70,000	.016500	.001750	.....	.....	
14,400	72,000	.018600	.002100	.....	.....	
14,800	74,000	.022250	.003650	.....	.....	
15,200	76,000	.025300	.003050	.....	.....	
15,600	78,000	.028000	.002700	.....	.....	
16,000	80,000	.031250	.003250	.....	.....	
16,400	82,000	.035750	.004500	.....	.....	
16,800	84,000	.040500	.004750	.....	.....	
17,200	86,000	.046750	.006250	.....	.....	
17,600	88,000	.055000	.008250	.....	.....	
18,000	90,000	.0650	.0100			Tensile strength.
18,400	92,000	.0950	.0300	.....	.....	
18,480	92,400	.1100	.0150	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	92,400
Elastic limit per square inch of original section.....	do....	56,000
Elongation per inch after rupture.....	inch...	0.2100
Elongation per inch under strain at elastic limit.....	do....	.001900
Reduction in diameter at point of rupture.....	do....	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	"	.75 from neck
Character of broken surface.....	granular, 60 per centum; silky, 40 per centum	
Elongation of inch sections.....	"	.11, ".31*

No. 2207.

Marks, $\frac{32}{M} T_2$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001300	.000100	0.	.....	
9,000	45,000	.001500	.000200	0.	.....	
10,000	50,000	.001650	.000150	0.	.....	
10,200	51,000	.001650	0.	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001800	.000050	.....	.....	
11,000	55,000	.001850	.000050	.....	.....	Elastic limit.
11,200	56,000	.002000	.000150	.....	.....	
11,400	57,000	.002150	.000150	.....	.....	
11,600	58,000	.002900	.000750	.....	.....	
11,800	59,000	.004350	.001450	.....	.....	
12,000	60,000	.006800	.002450	.....	.....	
12,200	61,000	.008250	.001450	.....	.....	
12,400	62,000	.009350	.001100	.....	.....	
12,600	63,000	.010500	.001150	.....	.....	
12,800	64,000	.011600	.001100	.....	.....	
13,000	65,000	.013000	.001400	.....	.....	
13,200	66,000	.014250	.001250	.....	.....	
13,400	67,000	.015500	.001250	.....	.....	
13,600	68,000	.016500	.001000	.....	.....	
13,800	69,000	.017800	.001300	.....	.....	
14,000	70,000	.019150	.001350	.....	.....	
14,400	72,000	.021750	.002600	.....	.....	
14,800	74,000	.024500	.002750	.....	.....	
15,200	76,000	.028100	.003600	.....	.....	
15,600	78,000	.032500	.004400	.....	.....	
16,000	80,000	.036750	.004250	.....	.....	
16,400	82,000	.042000	.005250	.....	.....	
16,800	84,000	.048000	.006000	.....	.....	
17,200	86,000	.055000	.007000	.....	.....	
17,600	88,000	.0650	.0100	.....	.....	
18,000	90,000	.0900	.0250	.....	.....	
18,020	90,100	.1150	.0250	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	90,100
Elastic limit per square inch of original section.....	do....	55,000
Elongation per inch after rupture.....	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do....	.001850
Reduction in diameter at point of rupture.....	do....	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....	".95 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".11, ".32*	

No. 1176.

Marks, $\frac{32}{B} T_{10}$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001400	.000200	0.	.....	
10,000	50,000	{ .001550	.000150 }	.000050	.000050	Elastic limit.
		{ .003050	.001500 }			
10,200	51,000	.007100	.004050	.....	.....	
10,400	52,000	.007350	.000250	.....	.....	
10,600	53,000	.008000	.000650	.....	.....	
10,800	54,000	.008900	.000900	.....	.....	
11,000	55,000	.010350	.001450	.008300	.008250	
11,200	56,000	.010850	.000500	.....	.....	
11,400	57,000	.011800	.000950	.....	.....	
11,600	58,000	.013100	.001300	.....	.....	
11,800	59,000	.014250	.001150			Tensile strength.
12,000	60,000	.015350	.001100	.012850	.004550	
12,400	62,000	.017650	.002300	.....	.....	
12,800	64,000	.020100	.002450	.....	.....	
13,200	66,000	.022800	.002700	.....	.....	
13,600	68,000	.026050	.003250	.....	.....	
14,000	70,000	.029250	.003200	.....	.....	
14,400	72,000	.032550	.003300	.....	.....	
14,800	74,000	.036950	.004400	.....	.....	
15,200	76,000	.041500	.004550	.....	.....	
15,600	78,000	.047250	.005750			
16,000	80,000	.055000	.007750	.....	.....	
16,400	82,000	.064500	.009500	.....	.....	
16,800	84,000	.079000	.014500	.....	.....	
17,200	86,000	.105000	.026000			
17,260	86,300	.1600	.0550	.....	.....	

General summary.

Specific gravity.....	7.8707
Tensile strength per square inch of original section.....	pounds.. 86,300
Elastic limit per square inch of original section.....	do.... 50,000
Elongation per inch after rupture.....	inch.... 0.2700
Elongation per inch under strain at elastic limit.....	do.... .001550
Reduction in diameter at point of rupture.....	do.... .144
Reduction in area after rupture, per centum of original section.....	49.1
Position of rupture.....	$\frac{7}{8}$ inch from neck
Character of broken surface.....	silky
Elongation of inch sections.....	".38*, ".16

No. 1177.

Marks, $\frac{32}{B} T_{10}$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load
1,000	5,000	.000200	.000200	0.	.....	
2,000	10,000	.000450	.000250	0.	.....	
3,000	15,000	.000600	.000150	0.	.....	
4,000	20,000	.000800	.000200	.000050	.000050	
5,000	25,000	.001000	.000200	.000050	0.	
6,000	30,000	.001150	.000150	.000050	0.	
7,000	35,000	.001350	.000200	.000100	.000050	
8,000	40,000	.001550	.000200	.000100	0.	
9,000	45,000	.001700	.000150	.000150	.000050	
10,000	50,000	.001850	.000150	.000200	.000050	Elastic limit.
		.002800	.000950	.001150	.000950	
10,200	51,000	.003450	.000650	.....	.....	
10,400	52,000	.007000	.003550	.....	.....	
10,600	53,000	.007900	.000900	.....	.....	
10,800	54,000	.008900	.001000	.....	.....	
11,000	55,000	.009650	.000750	.007400	.006250	
11,200	56,000	.010650	.001000	.....	.....	
11,400	57,000	.011150	.000500	.....	.....	
11,600	58,000	.012250	.001100	.....	.....	
11,800	59,000	.013250	.001000			Tensile strength.
12,000	60,000	.014600	.001350	.012100	.004700	
12,400	62,000	.016800	.002200	.....	.....	
12,800	64,000	.019150	.002350	.....	.....	
13,200	66,000	.022050	.002900	.....	.....	
13,600	68,000	.024800	.002750	.....	.....	
14,000	70,000	.028100	.003300	.....	.....	
14,400	72,000	.031350	.003250	.....	.....	
14,800	74,000	.035150	.003800	.....	.....	
15,200	76,000	.040850	.005700	.....	.....	
15,600	78,000	.045600	.004750	.....	.....	
16,000	80,000	.051300	.005700	.....	.....	
16,400	82,000	.060000	.008700	.....	.....	
16,800	84,000	.071500	.011500	.....	.....	
17,200	86,000	.094000	.022500	.....	.....	
17,510	87,550	.1350	.0410	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	87,550
Elastic limit per square inch of original section	do	50,000
Elongation per inch after rupture	inch..	0.2350
Elongation per inch under strain at elastic limit	do	.001850
Reduction in diameter at point of rupture	do	.104
Reduction in area after rupture, per centum of original section		37.1
Position of rupture	".40 from neck	
Character of broken surface	silky	
Elongation of inch sections	".31*, ".16	

No. 1176.

Marks, $\frac{32}{B} T_{10}$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001400	.000200	0.	.....	
10,000	50,000	{ .001550	.000150 }	.000050	.000050	Elastic limit.
		{ .003050	.001500 }			
10,200	51,000	.007100	.004050	.....	.....	
10,400	52,000	.007350	.000250	.....	.....	
10,600	53,000	.008000	.000650	.....	.....	
10,800	54,000	.008900	.000900	.....	.....	
11,000	55,000	.010350	.001450	.008300	.008250	
11,200	56,000	.010850	.000500	.....	.....	
11,400	57,000	.011800	.000950	.....	.....	
11,600	58,000	.013100	.001300	.....	.....	
11,800	59,000	.014250	.001150			Tensile strength.
12,000	60,000	.015350	.001100	.012850	.004550	
12,400	62,000	.017650	.002300	.....	.....	
12,800	64,000	.020100	.002450	.....	.....	
13,200	66,000	.022800	.002700	.....	.....	
13,600	68,000	.026050	.003250	.....	.....	
14,000	70,000	.029250	.003200	.....	.....	
14,400	72,000	.032550	.003300	.....	.....	
14,800	74,000	.036950	.004400	.....	.....	
15,200	76,000	.041500	.004550	.....	.....	
15,600	78,000	.047250	.005750			
16,000	80,000	.055000	.007750	.....	.....	
16,400	82,000	.064500	.009500	.....	.....	
16,800	84,000	.079000	.014500	.....	.....	
17,200	86,000	.105000	.026000	.....	.....	
17,260	86,300	.1600	.0550			

General summary.

Specific gravity.....	7.8707
Tensile strength per square inch of original section.....	pounds.. 86,300
Elastic limit per square inch of original section.....	do.... 50,000
Elongation per inch after rupture.....	inch... 0.2700
Elongation per inch under strain at elastic limit.....	do.... .001550
Reduction in diameter at point of rupture.....	do.... .144
Reduction in area after rupture, per centum of original section.....	49.1
Position of rupture.....	$\frac{7}{8}$ inch from neck
Character of broken surface.....	silky
Elongation of inch sections.....	".38", ".16

No. 1177.

Marks, $\frac{32}{B} T_{10}$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load
1,000	5,000	.000200	.000200	0.	-----	
2,000	10,000	.000450	.000250	0.	-----	
3,000	15,000	.000600	.000150	0.	-----	
4,000	20,000	.000800	.000200	.000050	.000050	
5,000	25,000	.001000	.000200	.000050	0.	
6,000	30,000	.001150	.000150	.000050	0.	
7,000	35,000	.001350	.000200	.000100	.000050	
8,000	40,000	.001550	.000200	.000100	0.	
9,000	45,000	.001700	.000150	.000150	.000050	
10,000	50,000	.001850	.000150	.000200	.000050	Elastic limit.
		.002800	.000950	.001150	.000950	
10,200	51,000	.003450	.000650	-----	-----	
10,400	52,000	.007000	.003550	-----	-----	
10,600	53,000	.007900	.000900	-----	-----	
10,800	54,000	.008900	.001000	-----	-----	
11,000	55,000	.009650	.000750	.007400	.006250	
11,200	56,000	.010650	.001000	-----	-----	
11,400	57,000	.011150	.000500	-----	-----	
11,600	58,000	.012250	.001100	-----	-----	
11,800	59,000	.013250	.001000	-----	-----	
12,000	60,000	.014600	.001350	.012100	.004700	
12,400	62,000	.016800	.002200	-----	-----	
12,800	64,000	.019150	.002350	-----	-----	
13,200	66,000	.022050	.002900	-----	-----	
13,600	68,000	.024800	.002750	-----	-----	
14,000	70,000	.028100	.003300	-----	-----	
14,400	72,000	.031350	.003250	-----	-----	
14,800	74,000	.035150	.003800	-----	-----	
15,200	76,000	.040850	.005700	-----	-----	
15,600	78,000	.045600	.004750	-----	-----	
16,000	80,000	.051300	.005700	-----	-----	
16,400	82,000	.060000	.008700	-----	-----	
16,800	84,000	.071500	.011500	-----	-----	
17,200	86,000	.094000	.022500	-----	-----	
17,510	87,550	.1350	.0410	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	87,550
Elastic limit per square inch of original section	do	50,000
Elongation per inch after rupture	inch..	0.2350
Elongation per inch under strain at elastic limit	do	.001850
Reduction in diameter at point of rupture	do	.104
Reduction in area after rupture, per centum of original section		37.1
Position of rupture	".40 from neck	
Character of broken surface	silky	
Elongation of inch sections	".31*, ".16	

No. 564.

Marks, $\frac{32}{B} \frac{T_{10}}{T_3}$

Length, 3".996.

Diameter, ".798.

Sectional area, .20 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000650	.000100	0.	.....	
15,000	30,000	.000850	.000200	0.	.....	
17,500	35,000	.001000	.000150	0.	.....	
20,000	40,000	.001150	.000150	0.	.....	
22,500	45,000	.001300	.000150	0.	.....	
25,000	50,000	.001450	.000150	0.	.....	
25,500	51,000	.008150	.006700			Elastic limit.
26,000	52,000	.009050	.000900	.....	.....	
26,500	53,000	.009700	.000650	.....	.....	
27,000	54,000	.010400	.000700	.....	.....	
27,500	55,000	.011250	.000850	.009250	.009250	Ultimate strength.
45,100	90,200	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 50,000
 Compression per inch under stress at elastic limitinch.. 0.001450
 Ultimate strength per square inch of original sectionpounds.. 90,200
 Manner of failure..... triple flexure

No. 1178.

Marks, $\frac{32}{M} T_{10}$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.	-----	
2,000	10,000	.000400	.000200	0.	-----	
3,000	15,000	.000550	.000150	0.	-----	
4,000	20,000	.000700	.000150	0.	-----	
5,000	25,000	.000900	.000200	0.	-----	
6,000	30,000	.001050	.000150	0.	-----	
7,000	35,000	.001200	.000150	0.	-----	
8,000	40,000	.001350	.000150	.000050	.000050	
9,000	45,000	.001450	.000100	-----	-----	
9,800	49,000	.001550	.000100	-----	-----	Elastic limit.
10,000	50,000	.002750	.001200	.001150	.001100	
10,200	51,000	.003250	.000500	-----	-----	
10,400	52,000	.005600	.002350	-----	-----	
10,600	53,000	.007000	.001400	-----	-----	
10,800	54,000	.008000	.001000	-----	-----	
11,000	55,000	.008600	.000600	.006600	.005450	
11,200	56,000	.009450	.000850	-----	-----	
11,400	57,000	.010150	.000700	-----	-----	
11,600	58,000	.011300	.001150	-----	-----	
11,800	59,000	.012300	.001000	-----	-----	Tensile strength.
12,000	60,000	.013300	.001000	.010950	.004350	
12,400	62,000	.015850	.002550	-----	-----	
12,800	64,000	.018200	.002350	-----	-----	
13,200	66,000	.020750	.002550	-----	-----	
13,600	68,000	.023250	.002500	-----	-----	
14,000	70,000	.026050	.002800	-----	-----	
14,400	72,000	.029250	.003200	-----	-----	
14,800	74,000	.032900	.003650	-----	-----	
15,200	76,000	.036900	.004000	-----	-----	
15,600	78,000	.041250	.004350	-----	-----	
16,000	80,000	.047650	.006400	-----	-----	
16,400	82,000	.054750	.007100	-----	-----	
16,800	84,000	.064700	.009950	-----	-----	
17,200	86,000	.078500	.013800	-----	-----	
17,500	87,500	.1200	.0415	-----	-----	

General summary.

Tensile strength, per square inch of original section.....	pounds..	87,500
Elastic limit per square inch of original section.....	do ..	49,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do....	.001559
Reduction in diameter at point of rupture.....	do....	.144
Reduction in area after rupture, per centum of original section.....		49.1
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections	".32*, ".08	

No. 1179.

Marks, ³²T₁₀
M T₂

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	.000050	.000050	
8,000	40,000	.001200	.000150	.000050	0.	
9,000	45,000	.001350	.000150	.000050	0.	
10,000	50,000	.001550	.000200	.000100	.000050	Elastic limit.
10,200	51,000	.002350	.000800	.....	.....	
10,400	52,000	.003000	.000650	.....	.....	
10,600	53,000	.003750	.000750	.....	.....	
10,800	54,000	.004650	.000900	.....	.....	
11,000	55,000	.005650	.001000	.003800	.003700	
11,200	56,000	.006000	.000350	.....	.....	
11,400	57,000	.006950	.000950	.....	.....	
11,600	58,000	.008450	.001500	.....	.....	
11,800	59,000	.009900	.001450	.....	.....	
12,000	60,000	.013100	.003200			Tensile strength.
12,400	62,000	.014350	.001250	.....	.....	
12,800	64,000	.015850	.001500	.....	.....	
13,200	66,000	.018250	.002400	.....	.....	
13,600	68,000	.020850	.002600	.....	.....	
14,000	70,000	.023600	.002750	.....	.....	
14,400	72,000	.027500	.003900	.....	.....	
14,800	74,000	.029750	.002250	.....	.....	
15,200	76,000	.033550	.003800	.....	.....	
15,600	78,000	.038000	.004450	.....	.....	
16,000	80,000	.042850	.004850			
16,400	82,000	.048900	.006050	.....	.....	
16,800	84,000	.056800	.007900	.....	.....	
17,200	86,000	.067500	.010700	.....	.....	
17,600	88,000	.086750	.019250	.....	.....	
17,810	89,050	.1250	.038250			

General summary.

Tensile strength per square inch of original section.....	pounds..	89,050
Elastic limit per square inch of original section.....	do....	50,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do....	.001550
Reduction in diameter at point of rupture.....	do....	.134
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....	" .40 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	" .30*, " .10	

No. 1663.

Marks, $\frac{32}{B} T_{11}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000350	.000200	0.	-----	
3,000	15,000	.000500	.000150	0.	-----	
4,000	20,000	.000700	.000200	0.	-----	
5,000	25,000	.000850	.000150	0.	-----	
6,000	30,000	.001000	.000150	0.	-----	
7,000	35,000	.001200	.000200	0.	-----	
8,000	40,000	.001350	.000150	0.	-----	
9,000	45,000	.001500	.000150	.000050	.000050	
9,200	46,000	.001500	0.	-----	-----	Elastic limit.
9,400	47,000	.001550	.000050	-----	-----	
9,600	48,000	.001600	.000050	-----	-----	
9,800	49,000	.001700	.000100	-----	-----	
10,000	50,000	.002850	.001150	.001200	.001150	
10,200	51,000	.003900	.001050	-----	-----	
10,400	52,000	.004850	.000950	-----	-----	
10,600	53,000	.005750	.000900	-----	-----	
10,800	54,000	.007000	.001250	-----	-----	
11,000	55,000	.007850	.000850	.005850	.004650	
11,200	56,000	.008350	.000500	-----	-----	
11,400	57,000	.009100	.000750	-----	-----	
11,600	58,000	.010350	.001250	-----	-----	
11,800	59,000	.011150	.000800	-----	-----	
12,000	60,000	.012350	.001200	.010050	.004200	
12,400	62,000	.014100	.001750	-----	-----	
12,800	64,000	.016000	.001900	-----	-----	
13,200	66,000	.018600	.002600	-----	-----	
13,600	68,000	.021000	.002400	-----	-----	
14,000	70,000	.023500	.002500	-----	-----	
14,400	72,000	.026250	.002750	-----	-----	
14,800	74,000	.029500	.003250	-----	-----	
15,200	76,000	.032700	.003200	-----	-----	
15,600	78,000	.036200	.003500	-----	-----	
16,000	80,000	.040850	.004650	-----	-----	
16,400	82,000	.046000	.005150	-----	-----	
16,800	84,000	.052300	.006300	-----	-----	
17,200	86,000	.060250	.007950	-----	-----	
17,600	88,000	.071500	.011250	-----	-----	
18,000	90,000	.096000	.024500	-----	-----	Tensile strength.
18,110	90,550	.1200	.0240	-----	-----	

General summary.

Specific gravity.....	7.8657
Tensile strength per square inch of original section	pounds.. 90,550
Elastic limit per square inch of original section	do.... 49,000
Elongation per inch after rupture.....	inch.. 0.2150
Elongation per inch under strain at elastic limit.....	do.... .001700
Reduction in diameter at point of rupture	do.... .145
Reduction in area after rupture, per centum of original section	49.1
Position of rupture.....	".75 from neck
Character of broken surface.....	silky
Elongation of inch sections.....	".32*, ".11

No. 1664.

Marks, $\frac{32}{B} \frac{T_{11}}{T_2}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001350	.000150	0.	.....	
9,200	46,000	.001350	0.	.....	.....	
9,400	47,000	.001400	.000050	.....	.....	
9,600	48,000	.001450	.000050	.....	.....	
9,800	49,000	.001500	.000050	.....	.....	
10,000	50,000	.001550	.000050	0.		Elastic limit.
10,200	51,000	.001650	.000100	.....	.....	
10,400	52,000	.001900	.000250	.....	.....	
10,600	53,000	.002300	.000400	.....	.....	
10,800	54,000	.002900	.000600	.....	.....	
11,000	55,000	.003700	.000800	.001850	.001850	
11,200	56,000	.005150	.001450	.....	.....	
11,400	57,000	.005850	.000700	.....	.....	
11,600	58,000	.007050	.001200	.....	.....	
11,800	59,000	.008250	.001200	.....	.....	
12,000	60,000	.009450	.001200	.007200	.005350	
12,400	62,000	.010850	.001400	.....	.....	
12,800	64,000	.013100	.002250	.....	.....	
13,200	66,000	.015250	.002150	.....	.....	
13,600	68,000	.017700	.002450	.....	.....	
14,000	70,000	.020100	.002400			Tensile strength.
14,400	72,000	.022450	.002350	.....	.....	
14,800	74,000	.025500	.003050	.....	.....	
15,200	76,000	.028350	.002850	.....	.....	
15,600	78,000	.031600	.003250	.....	.....	
16,000	80,000	.035500	.003900	.....	.....	
16,400	82,000	.040000	.004500	.....	.....	
16,800	84,000	.045050	.005050	.....	.....	
17,200	86,000	.051750	.006700	.....	.....	
17,600	88,000	.060000	.008250	.....	.....	
18,000	90,000	.072250	.012250	.....	.....	
18,400	92,000	.1000	.027750	.....	.....	
18,480	92,400	.1350	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	92,400
Elastic limit per square inch of original section.....	do.....	51,000
Elongation per inch after rupture.....	inch.....	0.2500
Elongation per inch under strain at elastic limit.....	do.....	.001650
Reduction in diameter at point of rupture.....	do.....	.145
Reduction in area after rupture, per centum of original section.....		49.1
Position of rupture.....	".55 from neck	
Character of broken surface.....	silky, traces of granulation	
Elongation of inch sections.....	".33*, ".17	

No. 570.

Marks, $\frac{32}{B} T_{11}$

Length, 4".

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000750	.000200	0.	.....	
15,000	30,000	.000850	.000100	0.	.....	
17,500	35,000	.001000	.000150	0.	.....	
20,000	40,000	.001150	.000150	0.	.....	
22,500	45,000	.001350	.000200	0.	.....	
24,000	48,000	.001400	.000050	.....	.....	
24,500	49,000	.001450	.000050	.....	.....	
25,000	50,000	.001450	0.	.000100	.000100	Elastic limit.
25,500	51,000	.002000	.000550	.....	.....	
26,000	52,000	.002800	.000800	.....	.....	
26,500	53,000	.004050	.001250	.....	.....	
27,000	54,000	.005250	.001200			Ultimate strength.
27,500	55,000	.006350	.001100	.004400	.004300	
48,300	96,600	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 50,000
 Compression per inch under stress at elastic limit inch.. 0.001600
 Ultimate strength per square inch of original section ... pounds.. 96,600
 Manner of failure triple flexure

H. Ex. 31—6

No. 1665.

Marks, $\frac{32}{M} T_{11}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000700	.000150	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001500	.000150	.000050	.000050	
9,200	46,000	.001500	0.	.....	.....	
9,400	47,000	.001550	.000050	.....	.....	
9,600	48,000	.001600	.000050	.....	.....	
9,800	49,000	.001650	.000050	.....	.....	
10,000	50,000	.001650	0.	.000050	0.	Elastic limit.
10,200	51,000	.001950	.000300	.....	.....	
10,400	52,000	.002250	.000300	.....	.....	
10,600	53,000	.002750	.000500	.....	.....	
10,800	54,000	.003400	.000650	.....	.....	
11,000	55,000	.004150	.000750	.002200	.002150	
12,200	56,000	.004900	.000750	.....	.....	
11,400	57,000	.006100	.001200	.....	.....	
11,600	58,000	.007200	.001100	.....	.....	
11,800	59,000	.008200	.001000	.....	.....	
12,000	60,000	.009250	.001050	.007050	.004850	
12,400	62,000	.011100	.001850	.....	.....	
12,800	64,000	.013100	.002000	.....	.....	
13,200	66,000	.015550	.002450	.....	.....	
13,600	68,000	.017700	.002150	.....	.....	
14,000	70,000	.020000	.002300	.....	.....	
14,400	72,000	.022450	.002450	.....	.....	
14,800	74,000	.025400	.002950	.....	.....	
15,200	76,000	.027900	.002500	.....	.....	
15,600	78,000	.031250	.003350	.....	.....	
16,000	80,000	.034600	.003350	.....	.....	
16,400	82,000	.039250	.004650	.....	.....	
16,800	84,000	.044850	.005600	.....	.....	
17,200	86,000	.050600	.005750	.....	.....	
17,600	88,000	.058900	.008300	.....	.....	
18,000	90,000	.072000	.013100	.....	.....	
18,400	92,000	.095000	.023000	.....	.....	
18,490	92,450	.1200	.0250			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	92,450
Elastic limit per square inch of original section	do....	50,000
Elongation per inch after rupture	inch..	0.2050
Elongation per inch under strain at elastic limit	do....	.001650
Reduction in diameter at point of rupture	do....	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	silky; traces of granulation	
Elongation of inch sections	".30", ".11	

No. 1666.

Marks, $\frac{32}{M} \frac{T_{11}}{T_2}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000250	.000150	0.	-----	
3,000	15,000	.000400	.000150	0.	-----	
4,000	20,000	.000600	.000200	0.	-----	
5,000	25,000	.000750	.000150	0.	-----	
6,000	30,000	.000950	.000200	0.	-----	
7,000	35,000	.001100	.000150	0.	-----	
8,000	40,000	.001250	.000150	0.	-----	
9,000	45,000	.001400	.000150	.000050	.000050	
9,200	46,000	.001450	.000050	-----	-----	
9,400	47,000	.001550	.000100	-----	-----	
9,600	48,000	.001550	0.	-----	-----	
9,800	49,000	.001600	.000050	-----	-----	
10,000	50,000	.001650	.000050	.000100	.000050	
10,200	51,000	.001650	0.	-----	-----	
10,400	52,000	.001700	.000050	-----	-----	
10,600	53,000	.001750	.000050	-----	-----	
10,800	54,000	.001850	.000100	-----	-----	Elastic limit.
11,000	55,000	.001900	.000050	.000150	.000050	
11,200	56,000	.002600	.000700	-----	-----	
11,400	57,000	.003900	.001300	-----	-----	
11,600	58,000	.005000	.001100	-----	-----	
11,800	59,000	.006450	.001450	-----	-----	
12,000	60,000	.007850	.001400	.005700	.005550	
12,400	62,000	.009700	.001850	-----	-----	
12,800	64,000	.011850	.002150	-----	-----	
13,200	66,000	.014600	.002750	-----	-----	
13,600	68,000	.016750	.002150	-----	-----	Tensile strength.
14,000	70,000	.019100	.002350	-----	-----	
14,400	72,000	.022050	.002950	-----	-----	
14,800	74,000	.024750	.002700	-----	-----	
15,200	76,000	.027400	.002650	-----	-----	
15,600	78,000	.030650	.003250	-----	-----	
16,000	80,000	.034600	.003950	-----	-----	
16,400	82,000	.039300	.004700	-----	-----	
16,800	84,000	.044150	.004850	-----	-----	
17,200	86,000	.050600	.006450	-----	-----	
17,600	88,000	.060000	.009400	-----	-----	
18,000	90,000	.073750	.013750	-----	-----	
18,390	91,950	.1200	.046250	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	91,950
Elastic limit per square inch of original section	do ...	55,000
Elongation per inch after rupture	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do....	.001900
Reduction in diameter at point of rupture.....	do....	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture	".45 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".32*, ".11	

No. 1163.

Marks, $\frac{32}{B} \frac{T_{12}}{T_1}$

Diameter, ".505.

Sectional area, .20 square inch..

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000350	.000250	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001250	.000100	0.	.....	
9,000	45,000	.001400	.000150	0.	.....	
10,000	50,000	.001550	.000150	0.		Elastic limit.
10,800	54,000	.001650	.000100	.....	.....	
11,000	55,000	.003600	.001950	.001850	.001850	
11,200	56,000	.005300	.001700	.....	.....	
11,400	57,000	.005650	.000350	.....	.....	
11,600	58,000	.007700	.002050	.....	.....	
11,800	59,000	.009000	.001300	.....	.....	
12,000	60,000	.010150	.001150	.007950	.006100	
12,400	62,000	.011900	.001750	.....	.....	
12,800	64,000	.013450	.001550	.....	.....	
13,200	66,000	.015850	.001400			Tensile strength.
13,600	68,000	.019000	.003150	.....	.....	
14,000	70,000	.021000	.002000	.....	.....	
14,400	72,000	.023500	.002500	.....	.....	
14,800	74,000	.026250	.002750	.....	.....	
15,200	76,000	.029500	.003250	.....	.....	
15,600	78,000	.033100	.003600	.....	.....	
16,000	80,000	.037000	.003900	.....	.....	
16,400	82,000	.041550	.004550	.....	.....	
16,800	84,000	.046650	.005100	.....	.....	
17,200	86,000	.053500	.006850			
17,600	88,000	.067000	.013500	.....	.....	
18,000	90,000	.080600	.013600	.....	.....	
18,400	92,000	.1100	.0296	.....	.....	
18,450	92,250					

General summary.

Specific gravity.....	7.8654
Tensile strength per square inch of original section..... pounds..	92,250
Elastic limit per square inch of original section..... do ..	54,000
Elongation per inch after rupture..... inch..	0.2050
Elongation per inch under strain at elastic limit..... do....	.001650
Reduction in diameter at point of rupture..... do ..	.125
Reduction in area after rupture, per centum of original section.....	43.3
Position of rupture.....	"-40 from neck
Character of broken surface.....	silky
Elongation of inch sections.....	".30*, ".11

No. 1164.

Marks, $\frac{32}{B} \frac{T_{12}}{T_2}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000300	.000100	0.	.....	
4,000	20,000	.000500	.000200	0.	.....	
5,000	25,000	.000700	.000200	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001100	.000100	0.	.....	
9,000	45,000	.001350	.000250	0.	.....	
10,000	50,000	.001450	.000100	0.	.....	
10,200	51,000	.001450	0.	.....	.....	
10,400	52,000	.001500	.000050	.....	.....	
10,600	53,000	.001500	0.	.....	.....	
10,800	54,000	.001550	.000050	.....	.....	Elastic limit.
11,000	55,000	.008800	.007250	.006700	.006700	
11,200	56,000	.009600	.000800	.....	.....	
11,400	57,000	.010050	.000450	.....	.....	
11,600	58,000	.010500	.000450	.....	.....	
11,800	59,000	.011600	.001100	.....	.....	
12,000	60,000	.012700	.001100	.010350	.003650	Rested one hour under initial load.
12,400	62,000	.015400	.002700	.....	.....	
12,800	64,000	.017000	.001600	.....	.....	
13,200	66,000	.019500	.002500	.....	.....	
13,600	68,000	.022050	.002550	.....	.....	
14,000	70,000	.025050	.003000	.....	.....	
14,400	72,000	.028000	.002950	.....	.....	
14,800	74,000	.031200	.003200	.....	.....	
15,200	76,000	.035300	.004100	.....	.....	
15,600	78,000	.039800	.004500	.....	.....	
16,000	80,000	.045600	.005800	.....	.....	
16,400	82,000	.052600	.007000	.....	.....	
16,800	84,000	.060500	.007900	.....	.....	
17,200	86,000	.076100	.005600	.....	.....	
17,600	88,000	.0950	.0189	.....	.....	
17,810	89,050	.1400	.0450	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	89,050
Elastic limit per square inch of original section.....	do....	54,000
Elongation per inch after rupture.....	inch..	0.2250
Elongation per inch under strain at elastic limit.....	do....	.001550
Reduction in diameter at point of rupture.....	do....	.145
Reduction in area after rupture, per centum of original section.....		49.1
Position of rupture.....	".60 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".32*, ".13	

No. 562.

Marks, $\frac{32}{B} T_{12}$

Length, 3".98.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000700	.000150	0.	.....	
15,000	30,000	.000850	.000150	0.	.....	
17,500	35,000	.001000	.000150	0.	.....	
20,000	40,000	.001200	.000200	0.	.....	
22,500	45,000	.001350	.000150	0.	.....	
25,000	50,000	.001500	.000150	0.	.....	
25,500	51,000	.001500	0.	.....	.....	
26,000	52,000	.001550	.000050	.....	.....	
26,500	53,000	.001600	.000050	.....	.....	
27,000	54,000	.001650	.000050	.....	.....	
27,500	55,000	.001700	.000050	0.	.....	
28,000	56,000	.001750	.000050	.....	.....	
28,500	57,000	.001800	.000050			Elastic limit.
29,000	58,000	.009400	.007600	.....	.....	
29,500	59,000	.010650	.001250	.....	.....	
30,000	60,000	.011500	.000850	.009200	.009200	Ultimate strength.
47,860	95,720	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds... 57,000
 Compression per inch under stress at elastic limit..... inch... 0.001800
 Ultimate strength per square inch of original section.....pounds... 95,720
 Manner of failure..... triple flexure

No. 1165.

Marks, $\frac{32}{M} T_{12}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000700	.000100	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001400	.000200	0.	.....	
10,000	50,000	.001600	.000200	.000050	.000050	
10,200	51,000	.001650	.000050	.....	.....	Elastic limit.
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.003700	.002000	.....	.....	
10,800	54,000	.005300	.001600	.....	.....	
11,000	55,000	.007000	.001700	.004850	.004800	
11,200	56,000	.007400	.000400	.....	.....	
11,400	57,000	.008150	.000750	.....	.....	
11,600	58,000	.008950	.000800	.....	.....	
11,800	59,000	.010150	.001200	.....	.....	
12,000	60,000	.010900	.000750	.008700	.003850	
12,400	62,000	.013450	.002550	.....	.....	
12,800	64,000	.015500	.002050	.....	.....	
13,200	66,000	.017750	.002250	.....	.....	
13,600	68,000	.020150	.002400	.....	.....	
14,000	70,000	.023050	.002900	.....	.....	
14,400	72,000	.026050	.003000	.....	.....	
14,800	74,000	.028500	.002450	.....	.....	
15,200	76,000	.032000	.003500	.....	.....	
15,600	78,000	.036150	.004150	.....	.....	
16,000	80,000	.040600	.004450	.....	.....	
16,400	82,000	.045150	.004550	.....	.....	
16,800	84,000	.052050	.006900	.....	.....	
17,200	86,000	.060300	.008250	.....	.....	
17,600	88,000	.072600	.012300	.....	.....	
18,000	90,000	.098500	.025900	.....	.....	
18,080	90,400	.1500	.0515	.....	.....	Tensile strength.

General summary.

Specific gravity.....	7.8601
Tensile strength per square inch of original section.....pounds..	90,400
Elastic limit per square inch of original section.....do.....	52,000
Elongation per inch after rupture.....inch..	0.2250
Elongation per inch under strain at elastic limit.....do.....	.001700
Reduction in diameter at point of rupture.....do.....	.115
Reduction in area after rupture, per centum of original section.....	40.3
Position of rupture.....	".55 from neck
Character of broken surface.....	silky, 50 per centum; granular, 10 per centum
Elongation of inch sections.....	".32*, ".13

No. 1166.

Marks, ³²T₁₂
M T₂

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	.000050	.000050	
9,000	45,000	.001400	.000150	.000050	0.	
10,000	50,000	.001550	.000150	.000050	0.	Elastic limit.
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.005100	.003400	.....	.....	
11,000	55,000	.007300	.002200	.005250	.005200	
11,200	56,000	.007900	.000600	.....	.....	
11,400	57,000	.008750	.000850	.....	.....	
11,600	58,000	.009750	.001000	.....	.....	
11,800	59,000	.010700	.000950	.....	.....	
12,000	60,000	.011750	.001050	.009500	.004250	
12,400	62,000	.014150	.002400	.....	.....	
12,800	64,000	.016050	.001900	.....	.....	
13,200	66,000	.018600	.002550	.....	.....	
13,600	68,000	.021100	.002500	.....	.....	
14,000	70,000	.023750	.002650	.....	.....	
14,400	72,000	.026750	.003000	.....	.....	
14,800	74,000	.029700	.002950	.....	.....	
15,200	76,000	.033600	.003900	.....	.....	
15,600	78,000	.037800	.004200	.....	.....	
16,000	80,000	.042250	.004450	.....	.....	
16,400	82,000	.048350	.006100	.....	.....	
16,800	84,000	.056250	.007900	.....	.....	
17,200	86,000	.066000	.009750	.....	.....	
17,600	88,000	.083250	.017250	.....	.....	
17,880	89,400	.1175	.034250			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	89,400
Elastic limit per square inch of original section	do....	53,000
Elongation per inch after rupture	inch..	0.1900
Elongation per inch under strain at elastic limit	do....	.001700
Reduction in diameter at point of rupture	do....	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture		".55 from neck
Character of broken surface		silky
Elongation of inch sections		".28*, ".10

No. 1167.

Marks, $\frac{32}{B} \frac{T_{12}}{T_1}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000400	.000200	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001200	.000250	0.	.....	
8,000	40,000	.001300	.000100	0.	.....	
9,000	45,000	.001400	.000100	0.	.....	
10,000	50,000	.001650	.000250	.000100	.000100	Elastic limit.
10,200	51,000	.001650	0.	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001800	.000100	.....	.....	
10,800	54,000	.003200	.001400	.....	.....	
11,000	55,000	.004500	.001300	.002500	.002400	
11,200	56,000	.005700	.001200	.....	.....	
11,400	57,000	.006350	.000650	.....	.....	
11,600	58,000	.007200	.000850	.....	.....	
11,800	59,000	.008250	.001050	.....	.....	
12,000	60,000	.009350	.001100	.007150	.004650	Tensile strength.
12,400	62,000	.011200	.001850	.....	.....	
12,800	64,000	.013300	.002100	.....	.....	
13,200	66,000	.015600	.002300	.....	.....	
13,600	68,000	.017750	.002150	.....	.....	
14,000	70,000	.020100	.002350	.....	.....	
14,400	72,000	.022700	.002600	.....	.....	
14,800	74,000	.025100	.002400	.....	.....	
15,200	76,000	.028050	.002950	.....	.....	
15,600	78,000	.031750	.003700	.....	.....	
16,000	80,000	.035400	.003650			Tensile strength.
16,400	82,000	.039550	.004150	.....	.....	
16,800	84,000	.044500	.004950	.....	.....	
17,200	86,000	.050600	.006100	.....	.....	
17,600	88,000	.058750	.008150	.....	.....	
18,000	90,000	.072000	.013250	.....	.....	
18,390	91,950	.1100	.0380	.....	.....	

General summary.

Specific gravity.....	7.8634
Tensile strength per square inch of original section.....pounds..	91,950
Elastic limit per square inch of original section.....do.....	53,000
Elongation per inch after rupture.....inch..	0.1950
Elongation per inch under strain at elastic limit.....do.....	.001800
Reduction in diameter at point of rupture.....do.....	.135
Reduction in area after rupture, per centum of original section.....	46.2
Position of rupture.....	".35 from middle of stem
Character of broken surface.....	silky
Elongation of inch sections.....	".30*, ".09

No. 1168.

Marks, $\frac{32}{B} T_{13}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000600	.000100	0.	.....	
5,000	25,000	.000850	.000250	0.	.....	
6,000	30,000	.001050	.000200	.000050	.000050	
7,000	35,000	.001200	.000150	.000050	0.	
8,000	40,000	.001350	.000150	.000050	0.	
9,000	45,000	.001450	.000100	.000050	0.	
10,000	50,000	.001600	.000150	.000050	0.	Elastic limit.
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001750	.000100	.....	.....	
10,600	53,000	.001850	.000100	.....	.....	
10,800	54,000	.002400	.000550	.....	.....	
11,000	55,000	.003650	.001250	.001800	.001750	
11,200	56,000	.005850	.002200	.....	.....	
11,400	57,000	.006200	.000350	.....	.....	
11,600	58,000	.007300	.001100	.....	.....	
11,800	59,000	.008550	.001250	.....	.....	
12,000	60,000	.009350	.000800	.007100	.005300	Tensile strength.
12,400	62,000	.011350	.002000	.....	.....	
12,800	64,000	.014000	.002650	.....	.....	
13,200	66,000	.016000	.002000	.....	.....	
13,600	68,000	.018550	.002550	.....	.....	
14,000	70,000	.021000	.002450	.....	.....	
14,400	72,000	.023600	.002600	.....	.....	
14,800	74,000	.026550	.002950	.....	.....	
15,200	76,000	.029750	.003200	.....	.....	
15,600	78,000	.033500	.003750	.....	.....	
16,000	80,000	.037500	.004000			Tensile strength.
16,400	82,000	.042500	.005000	.....	.....	
16,800	84,000	.048250	.005750	.....	.....	
17,200	86,000	.057500	.009250	.....	.....	
17,600	88,000	.066000	.008500	.....	.....	
18,000	90,000	.090500	.024500	.....	.....	
18,060	90,300	.1075	.0170	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	90,300
Elastic limit per square inch of original section.....	do.....	53,000
Elongation per inch after rupture.....	inch..	0.1900
Elongation per inch under strain at elastic limit.....	do.....	.001850
Reduction in diameter at point of rupture.....	do.....	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....	".25 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".26*, ".12	

No. 563.

Marks, $\frac{32}{B} T_{13}$

Length, 4".

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000650	.000250	0.	.....	
12,500	25,000	.000800	.000150	0.	.....	
15,000	30,000	.000950	.000150	0.	.....	
17,500	35,000	.001100	.000150	0.	.....	
20,000	40,000	.001250	.000150	0.	.....	
22,500	45,000	.000350	.000100	0.	.....	
25,000	50,000	.001550	.000200	0.	.....	
25,500	51,000	.001550	0.	.....	.....	
26,000	52,000	.001600	.000050	.....	.....	
26,500	53,000	.001650	.000050	.....	.....	
27,000	54,000	.001800	.000150	.....	.....	
27,500	55,000	.001900	.000100	.000200	.000200	
28,000	56,000	.002000	.000100	.....	.....	
28,500	57,000	.002050	.000050	.....	.....	
29,000	58,000	.002150	.000100			Elastic limit.
29,500	59,000	.002300	.000150	.....	.....	
30,000	60,000	.002700	.000400	.000800	.000600	
30,500	61,000	.003150	.000450	.....	.....	
31,000	62,000	.003750	.000600	.....	.....	
31,500	63,000	.004400	.000650			Ultimate strength.
32,000	64,000	.005500	.001100	.....	.....	
32,500	65,000	.006300	.000800	.004250	.003450	
48,090	96,180	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 58,000
 Compression per inch under stress at elastic limitinch.. 0.002150
 Ultimate strength per square inch of original section.....pounds.. 96,180
 Manner of failure.....triple flexure

No. 1169.

Marks, $\frac{32}{M} T_{13}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001100	.000100	0.	.....	
8,000	40,000	.001300	.000200	0.	.....	
9,000	45,000	.001400	.000100	0.	.....	
10,000	50,000	.001600	.000200	0.		Elastic limit.
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001800	.000100	.....	.....	
10,800	54,000	.002050	.000250	.....	.....	
11,000	55,000	.002350	.000300	.000600	.000600	
11,200	56,000	.002900	.000550	.....	.....	
11,400	57,000	.003150	.000250	.....	.....	
11,600	58,000	.003650	.000500	.....	.....	
11,800	59,000	.004650	.001000	.....	.....	
12,000	60,000	.006350	.000700	.004100	.003500	
12,400	62,000	.008500	.002150	.....	.....	
12,800	64,000	.010450	.001950	.....	.....	
13,200	66,000	.012500	.002050	.....	.....	
13,600	68,000	.014500	.002000	.....	.....	
14,000	70,000	.016750	.002250	.....	.....	
14,400	72,000	.018750	.002000	.....	.....	
14,800	74,000	.021200	.002450	.....	.....	
15,200	76,000	.023400	.002200	.....	.....	
15,600	78,000	.026900	.003500	.....	.....	
16,000	80,000	.029500	.002600			Tensile strength.
16,400	82,000	.032900	.003400	.....	.....	
16,800	84,000	.036400	.003500	.....	.....	
17,200	86,000	.041000	.004600	.....	.....	
17,600	88,000	.045750	.004750	.....	.....	
18,000	90,000	.052050	.006300	.....	.....	
18,400	92,000	.061500	.009450	.....	.....	
18,800	94,000	.074500	.013000	.....	.....	
19,110	95,550	.0950	.0205	.....	.....	

General summary.

Specific gravity	7.8590
Tensile strength per square inch of original section.....	pounds.. 95,550
Elastic limit per square inch of original section	do.... 53,000
Elongation per inch after rupture.....	inch.. 0.1850
Elongation per inch under strain at elastic limit	do.... .001800
Reduction in diameter at point of rupture.....	do.... .125
Reduction in area after rupture, per centum of original section	43.3
Position of rupture	$\frac{1}{2}$ inch from neck
Character of broken surface.....	granular, 50 per centum ; silky, 50 per centum
Elongation of inch sections	".29* ".08

No. 1170.

Marks, $^{32}T_{13}$
 $M T_2$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000350	.000250	0.	-----	
3,000	15,000	.000500	.000150	0.	-----	
4,000	20,000	.000650	.000150	0.	-----	
5,000	25,000	.000750	.000100	0.	-----	
6,000	30,000	.000900	.000150	0.	-----	
7,000	35,000	.001100	.000200	0.	-----	
8,000	40,000	.001300	.000200	0.	-----	
9,000	45,000	.001450	.000150	0.	-----	
10,000	50,000	.001550	.000100	0.	-----	
10,200	51,000	.001600	.000050	-----	-----	
10,400	52,000	.001650	.000050	-----	-----	
10,600	53,000	.001650	0.	-----	-----	
10,800	54,000	.001700	.000050	-----	-----	
11,000	55,000	.001750	.000050	0.	-----	
11,200	56,000	.001800	.000050	-----	-----	
11,400	57,000	.001850	.000050	-----	-----	
11,600	58,000	.001900	.000050	-----	-----	
11,800	59,000	.002000	.000100	-----	-----	Elastic limit.
12,000	60,000	.002550	.000550	.000600	.000600	
12,200	61,000	.003150	.000600	-----	-----	
12,400	62,000	.004350	.001200	-----	-----	
12,600	63,000	.005200	.000850	-----	-----	
12,800	64,000	.006500	.001300	-----	-----	
13,200	66,000	.008600	.002100	-----	-----	
13,600	68,000	.011100	.002500	-----	-----	
14,000	70,000	.013000	.001900	-----	-----	
14,400	72,000	.015000	.002000	-----	-----	
14,800	74,000	.016900	.001900	-----	-----	
15,200	76,000	.019500	.002600	-----	-----	
15,600	78,000	.021600	.003100	-----	-----	
16,000	80,000	.024300	.002700	-----	-----	
16,400	82,000	.027400	.003100	-----	-----	
16,800	84,000	.030300	.002900	-----	-----	
17,200	86,000	.033500	.003200	-----	-----	
17,600	88,000	.037500	.004000	-----	-----	
18,000	90,000	.041850	.004350	-----	-----	
18,400	92,000	.047500	.005650	-----	-----	
18,800	94,000	.054600	.007100	-----	-----	
19,200	96,000	.066500	.011900	-----	-----	
19,600	98,000	.086000	.019500	-----	-----	
19,680	98,400	.100500	.014500	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	98,400
Elastic limit per square inch of original section.....	do.....	59,000
Elongation per inch after rupture.....	inch..	0.1700
Elongation per inch under strain at elastic limit.....	do ..	.002000
Reduction in diameter at point of rupture.....	do.....	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	granular, 60 per centum; silky, 40 per centum	
Elongation of inch sections.....	" .27*, ".07	

[Additional specimens.]

No. 2244.

Marks, $\frac{32}{B} T_{13}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.	.....	
2,000	10,000	.000350	.000150	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000700	.000150	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001050	.000200	0.	.....	
7,000	35,000	.001250	.000200	0.	.....	
8,000	40,000	.001450	.000200	0.	.....	
9,000	45,000	.001600	.000150	.....	.....	
9,600	48,000	.001700	.000100	.....	.....	
9,800	49,000	.001750	.000050			Elastic limit.
10,000	50,000	.004800	.003050	.....	.....	
10,200	51,000	.006600	.001800	.....	.....	
10,400	52,000	.007500	.000900	.....	.....	
10,600	53,000	.008700	.001200	.....	.....	
10,800	54,000	.009700	.001000	.....	.....	
11,000	55,000	.010650	.000950	.....	.....	
11,200	56,000	.011900	.001250	.....	.....	
11,400	57,000	.012750	.000850	.....	.....	
11,600	58,000	.013900	.001150	.....	.....	
11,800	59,000	.015000	.001100	.....	.....	
12,000	60,000	.016000	.001000	.....	.....	
12,400	62,000	.018750	.002750	.....	.....	
12,800	64,000	.021250	.002500	.....	.....	
13,200	66,000	.024000	.002750	.....	.....	
13,600	68,000	.027000	.003000	.....	.....	
14,000	70,000	.030600	.003600	.....	.....	
14,400	72,000	.034500	.003900	.....	.....	
14,800	74,000	.038250	.003750	.....	.....	
15,200	76,000	.043000	.005250	.....	.....	
15,600	78,000	.051000	.007500	.....	.....	
16,000	80,000	.058500	.007500	.....	.....	
16,400	82,000	.0700	.0115	.....	.....	
16,800	84,000	.0950	.0250	.....	.....	
16,970	84,850	.1250	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	84,850
Elastic limit per square inch of original section.....	do....	49,000
Elongation per inch after rupture.....	inch..	0.2200
Elongation per inch under strain at elastic limit.....	do....	.001750
Reduction in diameter at point of rupture.....	do....	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".34*, ".10	

No. 2245.

Marks, ³²T₁₃
B T₅

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001150	.000200	0.	.....	
8,000	40,000	.001350	.000200	0.	.....	
9,000	45,000	.001500	.000150	0.	.....	
10,000	50,000	.001700	.000200	0.		Elastic limit.
10,200	51,000	.003500	.001800	.....	.....	
10,400	52,000	.005250	.001750	.....	.....	
10,600	53,000	.007150	.001900	.....	.....	
10,800	54,000	.008500	.001350	.....	.....	
11,000	55,000	.009750	.001250	.....	.....	
11,200	56,000	.010500	.000750	.....	.....	
11,400	57,000	.011650	.001150	.....	.....	
11,600	58,000	.012100	.000450	.....	.....	
11,800	59,000	.013500	.001400	.....	.....	
12,000	60,000	.015000	.001500			Tensile strength.
12,400	62,000	.017250	.002250	.....	.....	
12,800	64,000	.019500	.002250	.....	.....	
13,200	66,000	.022250	.002750	.....	.....	
13,600	68,000	.025150	.002900	.....	.....	
14,000	70,000	.028000	.002850	.....	.....	
14,400	72,000	.031750	.003750	.....	.....	
14,800	74,000	.035250	.003500	.....	.....	
15,200	76,000	.040000	.004750	.....	.....	
15,600	78,000	.045250	.005250	.....	.....	
16,000	80,000	.052100	.006850	.....	.....	
16,400	82,000	.061750	.009650	.....	.....	
16,800	84,000	.0750	.013250	.....	.....	
17,200	86,000	.1100	.0350	.....	.....	
17,240	86,200	.1400	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	86,200
Elastic limit per square inch of original section.....	do....	50,000
Elongation per inch after rupture.....	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do....	.001700
Reduction in diameter at joint of rupture.....	do....	.145
Reduction in area after rupture, per centum of original section.....		49.1
Position of rupture.....	".10 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".30*, ".13	

No. 623.

Marks, $\frac{32}{B} \frac{T_{13}}{T_6}$
Length, 3".991.
Diameter, ".798.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000500	.000200	0.	.....	
10,000	20,000	.000700	.000200	0.	.....	
12,500	25,000	.000850	.000150	0.	.....	
15,000	30,000	.001000	.000150	0.	.....	
17,500	35,000	.001200	.000200	0.	.....	
20,000	40,000	.001350	.000150	0.	.....	
20,500	41,000	.001400	.000050	.....	.....	
21,000	42,000	.001500	.000100	.....	.....	
21,500	43,000	.001500	0.	.....	.....	
22,000	44,000	.001500	0.	.....	.....	
22,500	45,000	.001500	0.	0.	.....	
23,000	46,000	.001550	.000050	.....	.....	
23,500	47,000	.001550	0.	.....	.....	
24,000	48,000	.001600	.000050			Elastic limit.
24,500	49,000	.001700	.000100	.....	.....	
25,000	50,000	.001800	.000100	.000250	.000250	
25,500	51,000	.006100	.004300	.....	.....	
26,000	52,000	.007950	.001850	.....	.....	
26,500	53,000	.009850	.001900	.....	.....	
27,000	54,000	.010800	.000950			Ultimate strength.
27,500	55,000	.011950	.001150	.010000	.009750	
46,100	92,200	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 48,000
Compression per inch under stress at elastic limitinch.. 0.001600
Ultimate strength per square inch of original sectionpounds.. 92,200
Manner of failuretriple flexure

No. 2246.

Marks, $\frac{32}{M} T_{13}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000300	.000150	0.	-----	
3,000	15,000	.000450	.000150	0.	-----	
4,000	20,000	.000600	.000150	0.	-----	
5,000	25,000	.000800	.000200	0.	-----	
6,000	30,000	.000950	.000150	0.	-----	
7,000	35,000	.001100	.000150	0.	-----	
8,000	40,000	.001300	.000200	0.	-----	
8,200	41,000	.001350	.000050	-----	-----	Elastic limit.
8,400	42,000	.001400	.000050	-----	-----	
8,600	43,000	.001500	.000100	-----	-----	
8,800	44,000	.008500	.007000	-----	-----	
9,000	45,000	.010000	.001500	-----	-----	
9,200	46,000	.010900	.000900	-----	-----	
9,400	47,000	.011650	.000750	-----	-----	
9,600	48,000	.012650	.001000	-----	-----	
9,800	49,000	.013150	.000500	-----	-----	
10,000	50,000	.014500	.001350	-----	-----	
10,200	51,000	.015650	.001150	-----	-----	
10,400	52,000	.016700	.001050	-----	-----	
10,600	53,000	.018100	.001400	-----	-----	
10,800	54,000	.019050	.000950	-----	-----	
11,000	55,000	.020590	.001500	-----	-----	
11,200	56,000	.021640	.001100	-----	-----	
11,400	57,000	.023500	.002050	-----	-----	
11,600	58,000	.025250	.001750	-----	-----	
11,800	59,000	.026500	.001250	-----	-----	
12,000	60,000	.027650	.001150	-----	-----	
12,400	62,000	.031100	.003450	-----	-----	Tensile strength.
12,800	64,000	.035250	.004150	-----	-----	
13,200	66,000	.039750	.004500	-----	-----	
13,600	68,000	.044250	.004500	-----	-----	
14,000	70,000	.051500	.007250	-----	-----	
14,400	72,000	.058000	.006500	-----	-----	
14,800	74,000	.0650	.0070	-----	-----	
15,200	76,000	.0850	.0200	-----	-----	
15,600	78,000	.1050	.0200	-----	-----	
16,000	80,000	.1550	.0500	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	80,000
Elastic limit per square inch of original section.....	do....	43,000
Elongation per inch after rupture.....	inch..	0.2400
Elongation per inch under strain at elastic limit.....	do....	.001500
Reduction in diameter at point of rupture.....	do....	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....	$\frac{1}{2}$ inch from neck	
Character of broken surface.....	granular, 50 per centum; silky, 50 per centum	
Elongation of inch sections.....		".33*, ".15

H. Ex. 31—7

No. 2247.

Marks, ³²T₁₃
M T₄

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001100	.000200	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
8,200	41,000	.001300	.000050			Elastic limit.
8,400	42,000	.004100	.002800	.....	.....	
8,600	43,000	.005350	.001250	.....	.....	
8,800	44,000	.009500	.004150	.....	.....	
9,000	45,000	.010400	.000900	.....	.....	
9,200	46,000	.010850	.000450	.....	.....	
9,400	47,000	.011700	.000850	.....	.....	
9,600	48,000	.012700	.001000	.....	.....	
9,800	49,000	.013750	.001050	.....	.....	
10,000	50,000	.015000	.001250	.....	.....	
10,200	51,000	.015850	.000850	.....	.....	
10,400	52,000	.016500	.000650	.....	.....	
10,600	53,000	.017500	.001000			Tensile strength.
10,800	54,000	.019000	.001500	.....	.....	
11,000	55,000	.020150	.001150	.....	.....	
11,200	56,000	.021500	.001350	.....	.....	
11,400	57,000	.022750	.001250	.....	.....	
11,600	58,000	.024250	.001500	.....	.....	
11,800	59,000	.025650	.001400	.....	.....	
12,000	60,000	.027000	.001350	.....	.....	
12,400	62,000	.031100	.004100	.....	.....	
12,800	64,000	.034500	.003400	.....	.....	
13,200	66,000	.038750	.004250	.....	.....	
13,600	68,000	.045000	.006250	.....	.....	
14,000	70,000	.051000	.006000	.....	.....	
14,400	72,000	.057750	.006750	.....	.....	
14,800	74,000	.066500	.008750	.....	.....	
15,200	76,000	.0800	.0135	.....	.....	
15,600	78,000	.1100	.0300	.....	.....	
15,960	79,800	.1450	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	79,800
Elastic limit per square inch of original section.....	do....	41,000
Elongation per inch after rupture.....	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do....	.001300
Reduction in diameter at point of rupture.....	do....	.115
Reduction in area after rupture, per centum of original section.....	.....	40.3
Position of rupture.....	.....	"$\frac{1}{2}$ from neck
Character of broken surface.....	granular, 50 per centum; silky, 50 per centum	
Elongation of inch sections.....	.....	".31*, ".12

No. 1667.

Marks, $\frac{32}{B} T_{14}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000750	.000250	0.	.....	
5,000	25,000	.000900	.000150	0.	.....	
6,000	30,000	.001050	.000150	0.	.....	
7,000	35,000	.001250	.000200	0.	.....	
8,000	40,000	.001400	.000150	0.	.....	
9,000	45,000	.001550	.000150	.000050	.000050	
9,200	46,000	.001550	0.	.....	.....	
9,400	47,000	.001600	.000050	.....	.....	
9,600	48,000	.001650	.000050	.....	.....	
9,800	49,000	.001700	.000050	.....	.....	
10,000	50,000	.001750	.000050	.000100	.000050	
10,200	51,000	.001750	0.	.....	.....	
10,400	52,000	.001850	.000100	.....	.....	
10,600	53,000	.001850	0.	.....	.....	
10,800	54,000	.001900	.000050	.....	.....	
11,000	55,000	.001950	.000050	.000100	0.	Elastic limit.
11,200	56,000	.002000	.000050	.....	.....	
11,400	57,000	.002100	.000050	.....	.....	
11,600	58,000	.002550	.000400	.....	.....	
11,800	59,000	.003350	.000800	.....	.....	
12,000	60,000	.004250	.000900	.002250	.002150	
12,400	62,000	.006000	.001750	.....	.....	
12,800	64,000	.008850	.002850	.....	.....	
13,200	66,000	.011200	.002350	.....	.....	
13,600	68,000	.013200	.002000	.....	.....	
14,000	70,000	.015350	.002150	.....	.....	
14,400	72,000	.017550	.002200	.....	.....	
14,800	74,000	.020000	.002450	.....	.....	
15,200	76,000	.022150	.002150	.....	.....	
15,600	78,000	.025050	.002900	.....	.....	
16,000	80,000	.028250	.003200			Tensile strength.
16,400	82,000	.031750	.003500	.....	.....	
16,800	84,000	.035000	.003250	.....	.....	
17,200	86,000	.039250	.004250	.....	.....	
17,600	88,000	.043500	.004250	.....	.....	
18,000	90,000	.049350	.005850	.....	.....	
18,400	92,000	.056250	.006900	.....	.....	
18,800	94,000	.066200	.009950	.....	.....	
19,200	96,000	.0900	.0238	.....	.....	
19,240	96,200	.1050	.0150	.....	.....	

General summary.

Specific gravity	7.8589
Tensile strength per square inch of original section	pounds.. 96,200
Elastic limit per square inch of original section	do. 57,000
Elongation per inch after rupture	inch.. 0.1650
Elongation per inch under strain at elastic limit	do. .002150
Reduction in diameter at point of rupture	do. .085
Reduction in area after rupture, per centum of original section	30.7
Position of rupture	" $\frac{1}{2}$ from neck
Character of broken surface	granular, 60 per centum; silky center, 40 per centum
Elongation of inch sections	".25* ".08

No. 1668.

Marks, $\frac{32}{B} T_{14}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000500	.000250	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000750	.000100	0.	.....	
6,000	30,000	.000850	.000100	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001150	.000150	0.	.....	
9,000	45,000	.001350	.000200	0.	.....	
9,200	46,000	.001400	.000050	.....	.....	
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001450	0.	.....	.....	
9,800	49,000	.001500	.000050	.....	.....	
10,000	50,000	.001550	.000050	0.	.....	
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001650	0.	.....	.....	
10,800	54,000	.001700	.000050	.....	.....	
11,000	55,000	.001750	.000050	0.	.....	
11,200	56,000	.001800	.000050			Elastic limit.
11,400	57,000	.001850	.000050	.....	.....	
11,600	58,000	.001850	0.	.....	.....	
11,800	59,000	.001950	.000100	.....	.....	
12,000	60,000	.002050	.000100	.000200	.000200	
12,200	61,000	.002600	.000550	.....	.....	
12,400	62,000	.002850	.000250	.....	.....	
12,600	63,000	.003300	.000450	.....	.....	
12,800	64,000	.004000	.000700	.....	.....	
13,200	66,000	.006300	.001000	.....	.....	
13,600	68,000	.008500	.002500			Tensile strength.
14,000	70,000	.011050	.002550	.....	.....	
14,400	72,000	.013000	.001950	.....	.....	
14,800	74,000	.014900	.001900	.....	.....	
15,200	76,000	.017450	.002550	.....	.....	
15,600	78,000	.019750	.002300	.....	.....	
16,000	80,000	.022100	.002350	.....	.....	
16,400	82,000	.025600	.003500	.....	.....	
16,800	84,000	.028250	.002650	.....	.....	
17,200	86,000	.031250	.003000	.....	.....	
17,600	88,000	.034250	.003000	.....	.....	
18,000	90,000	.038000	.003750	.....	.....	
18,400	92,000	.042300	.004300	.....	.....	
18,800	94,000	.047600	.005300	.....	.....	
19,200	96,000	.055600	.008000	.....	.....	
19,600	98,000	.0650	.0094	.....	.....	
20,000	100,000	.0900	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	100,000
Elastic limit per square inch of original section.....	do....	58,000
Elongation per inch after rupture	inch..	0.1500
Elongation per inch under strain at elastic limit	do....	.001850
Reduction in diameter at point of rupture	do....	.095
Reduction in area after rupture, per centum of original section.....		34.0
Position of rupture		".35 from neck
Character of broken surface.....		granular at circumference; silky center
Elongation of inch sections		".22* ".08

No. 571.

Marks, ³²T₁₄
B T₃
Length, 4".
Diameter, ".798.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000450	.000200	0.	.....	
10,000	20,000	.000550	.000100	0.	.....	
12,500	25,000	.000750	.000200	0.	.....	
15,000	30,000	.000900	.000150	0.	.....	
17,500	35,000	.001050	.000150	0.	.....	
20,000	40,000	.001200	.000150	0.	.....	
22,500	45,000	.001350	.000150	0.	.....	
25,000	50,000	.001550	.000200	0.	.....	
25,500	51,000	.001550	0.	.....	.....	
26,000	52,000	.001550	0.	.....	.....	
26,500	53,000	.001600	.000050	.....	.....	
27,000	54,000	.001650	.000050	.....	.....	
27,500	55,000	.001700	.000050	0.		Elastic limit.
28,000	56,000	.001700	0.	.....	.....	
28,500	57,000	.001650	— .000050	.....	.....	
29,000	58,000	.001450	— .000200	.....	.....	
29,500	59,000	.001100	— .000350			Ultimate strength.
30,000	60,000	.000900	— .000200	— .000100	— .000100	
50,980	101,960	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds... 56,000
Compression per inch under stress at elastic limit inch... 0.001700
Ultimate strength per square inch of original section pounds... 101,960
Manner of failure..... triple flexure

No. 1669.

Marks, ³²T₁₄
M T₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001100	.000200	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001400	.000150	0.	.....	
9,200	46,000	.001400	0.	.....	.....	
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001450	0.	.....	.....	
9,800	49,000	.001500	.000050	.....	.....	
10,000	50,000	.001550	.000050	0.	.....	
10,200	51,000	.001550	0.	.....	.....	
10,400	52,000	.001600	.000050	.....	.....	
10,600	53,000	.001650	.000050	.....	.....	
10,800	54,000	.001700	.000050	.....	.....	
11,000	55,000	.001700	0.	0.		Elastic limit.
11,200	56,000	.001850	.000150	.....	.....	
11,400	57,000	.002500	.000650	.....	.....	
11,600	58,000	.003500	.001000	.....	.....	
11,800	59,000	.004800	.001300	.....	.....	
12,000	60,000	.006650	.001850	.004400	.004400	
12,400	62,000	.008600	.001950	.....	.....	
12,800	64,000	.011250	.002650	.....	.....	
13,200	66,000	.014150	.002900	.....	.....	
13,600	68,000	.016250	.002100	.....	.....	
14,000	70,000	.019000	.002750	.....	.....	
14,400	72,000	.021750	.002750	.....	.....	
14,800	74,000	.025000	.003250	.....	.....	
15,200	76,000	.028000	.003000	.....	.....	
15,600	78,000	.031250	.003250	.....	.....	
16,000	80,000	.035600	.004350	.....	.....	
16,400	82,000	.040000	.004400	.....	.....	
16,800	84,000	.045500	.005500	.....	.....	
17,200	86,000	.053750	.008250	.....	.....	
17,600	88,000	.065000	.011250	.....	.....	
18,000	90,000	.084500	.019500			Tensile strength.
18,080	90,400	.1100	.0255	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	90,400
Elastic limit per square inch of original section	do	55,000
Elongation per inch after rupture	inch..	0.1900
Elongation per inch under strain at elastic limit	do....	.001700
Reduction in diameter at point of rupture	do....	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture	".70 from neck; oblique	
Character of broken surface	silky	
Elongation of inch sections	".29*, ".09	

No. 1670.

Marks, $^{32}T_{14}$
 $M T_2$
 Diameter, ".504.
 Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.001000	.000250	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001450	.000150	0.	.....	
10,000	50,000	.001650	.000200	.000050	.000050	Elastic limit.
10,200	51,000	.001650	0.	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001800	.000050	.....	.....	
11,000	55,000	.002150	.000350	.000400	.000350	
11,200	56,000	.002750	.000600	.....	.....	
11,400	57,000	.003750	.001000	.....	.....	
11,600	58,000	.005100	.001350	.....	.....	
11,800	59,000	.006700	.001600	.....	.....	
12,000	60,000	.007750	.001050	.005550	.005150	Tensile strength.
12,400	62,000	.009700	.001950	.....	.....	
12,800	64,000	.012050	.002350	.....	.....	
13,200	66,000	.014550	.002500	.....	.....	
13,600	68,000	.016750	.002200	.....	.....	
14,000	70,000	.019250	.002500	.....	.....	
14,400	72,000	.022050	.002800	.....	.....	
14,800	74,000	.024600	.002550	.....	.....	
15,200	76,000	.027850	.003250	.....	.....	
15,600	78,000	.031050	.003200	.....	.....	
16,000	80,000	.034700	.003650			
16,400	82,000	.038900	.004200	.....	.....	
16,800	84,000	.044550	.005650	.....	.....	
17,200	86,000	.050000	.005450	.....	.....	
17,600	88,000	.059500	.009500	.....	.....	
18,000	90,000	.072500	.013000	.....	.....	
18,360	91,800	.1100	.0375	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	91,800
Elastic limit per square inch of original section.....	do....	54,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do....	.001800
Reduction in diameter at point of rupture.....	do....	.134
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....		".55 from neck
Character of broken surface.....		silky; trace of granulation
Elongation of inch sections.....		".31*, ".09

[Additional specimens.]

No. 2248.

Marks, $\frac{32}{B}T_{16}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001450	.000200	0.	.....	
9,200	46,000	.001500	.000050	.....	.....	
9,400	47,000	.001600	.000100			Elastic limit.
9,600	48,000	.001800	.000200	.....	.....	
9,800	49,000	.002500	.000700	.....	.....	
10,000	50,000	.003400	.000900	.....	.....	
10,200	51,000	.005500	.002100	.....	.....	
10,400	52,000	.006450	.000950	.....	.....	
10,600	53,000	.007500	.001050	.....	.....	
10,800	54,000	.008400	.000900	.....	.....	
11,000	55,000	.009500	.001100	.....	.....	
11,200	56,000	.010850	.001350	.....	.....	
11,400	57,000	.011550	.000700	.....	.....	
11,600	58,000	.012450	.000900	.....	.....	
11,800	59,000	.013500	.001050	.....	.....	
12,000	60,000	.014900	.001400	.....	.....	
12,400	62,000	.017250	.002350	.....	.....	
12,800	64,000	.019900	.002650	.....	.....	
13,200	66,000	.022450	.002550	.....	.....	
13,600	68,000	.024550	.002100	.....	.....	
14,000	70,000	.027500	.002950	.....	.....	
14,400	72,000	.031000	.003500	.....	.....	
14,800	74,000	.034750	.003750	.....	.....	
15,200	76,000	.038500	.003750	.....	.....	
15,600	78,000	.044500	.006000	.....	.....	
16,000	80,000	.051250	.006750	.....	.....	
16,400	82,000	.059500	.008250	.....	.....	
16,800	84,000	.0700	.0105	.....	.....	
17,200	86,000	.0950	.0250	.....	.....	
17,370	86,850	.1250	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	86,850
Elastic limit per square inch of original section.....	do....	47,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do....	.001600
Reduction in diameter at point of rupture.....	do....	.105
Reduction in area after rupture, per centum of original section.....	do....	37.1
Position of rupture.....	" $\frac{1}{2}$ from neck	
Character of broken surface.....	granular; dull center	
Elongation of inch sections.....	" .29, * ".11	

No. 2249.

Marks, ³²T₁₄
B T₅

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000700	.000200	0.	.....	
5,000	25,000	.000900	.000200	0.	.....	
6,000	30,000	.001100	.000200	0.	.....	
7,000	35,000	.001250	.000150	0.	.....	
8,000	40,000	.001400	.000150	0.	.....	
9,000	45,000	.001550	.000150	.....	.....	
9,200	46,000	.001600	.000050	.....	.....	
9,400	47,000	.001650	.000050	.....	.....	
9,600	48,000	.001750	.000100	.....	.....	Elastic limit.
9,800	49,000	.002350	.000600	.....	.....	
10,000	50,000	.003500	.001150	.....	.....	
10,200	51,000	.004650	.001150	.....	.....	
10,400	52,000	.005650	.001000	.....	.....	
10,600	53,000	.006600	.000950	.....	.....	
10,800	54,000	.007650	.001050	.....	.....	
11,000	55,000	.008500	.000850	.....	.....	
11,200	56,000	.009550	.001050	.....	.....	
11,400	57,000	.010350	.000800	.....	.....	
11,600	58,000	.011600	.001250	.....	.....	
11,800	59,000	.012750	.001150	.....	.....	
12,000	60,000	.013750	.001000	.....	.....	
12,400	62,000	.015900	.002150	.....	.....	
12,800	64,000	.017800	.001900	.....	.....	
13,200	66,000	.020000	.002200	.....	.....	
13,600	68,000	.023000	.003000	.....	.....	
14,000	70,000	.025500	.002500	.....	.....	
14,400	72,000	.029000	.003500	.....	.....	
14,800	74,000	.032250	.003250	.....	.....	
15,200	76,000	.035750	.003500	.....	.....	
15,600	78,000	.040000	.004250	.....	.....	
16,000	80,000	.045100	.005100	.....	.....	
16,400	82,000	.052000	.006900	.....	.....	
16,800	84,000	.062100	.010100	.....	.....	
17,200	86,000	.076000	.013900	.....	.....	
17,600	88,000	.1050	.0290	.....	.....	
17,650	88,250	.1300	.0250	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	88,250
Elastic limit per square inch of original section	do....	48,000
Elongation per inch after rupture	inch..	0.1900
Elongation per inch under strain at elastic limit	do....	.001750
Reduction in diameter at point of rupture	do....	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	granular, 60 per centum; dull silky, 40 per centum	
Elongation of inch sections	".26*, ".12	

No. 624.

Marks, ³²T₁₄
B T₆
Length, 3''¹¹.995.
Diameter, ''¹¹.798.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000500	.000200	0.	.....	
10,000	20,000	.000650	.000150	0.	.....	
12,500	25,000	.000800	.000150	0.	.....	
15,000	30,000	.000950	.000150	0.	.....	
17,500	35,000	.001100	.000150	0.	.....	
20,000	40,000	.001250	.000150	0.	.....	
20,500	41,000	.001300	.000050	.....	.....	
21,000	42,000	.001300	0.	.....	.....	
21,500	43,000	.001350	.000050	.....	.....	
22,000	44,000	.001400	.000050	.....	.....	
22,500	45,000	.001450	.000050	0.	.....	
23,000	46,000	.001500	.000050	.....	.....	
23,500	47,000	.001500	0.			Elastic limit.
24,000	48,000	.001750	.000250	.....	.....	
24,500	49,000	.004750	.003000	.....	.....	
25,000	50,000	.006300	.001550	.004550	.004550	Ultimate strength.
46,300	92,600	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 47,000
Compression per inch under stress at elastic limit.....inch.. 0.001500
Ultimate strength per square inch of original sectionpounds.. 92,600
Manner of failure..... triple flexure

No. 2251.

Marks, $^{32}T_{14}$
 MT_3 Diameter, $\frac{1}{2}$ ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000900	.000100	0.	.....	
7,000	35,000	.001100	.000200	.....	.....	
8,000	40,000	.001350	.000250	.....	.....	
9,000	45,000	.001500	.000150	.....	.....	
9,200	46,000	.001550	.000050	.....	.....	
9,400	47,000	.001600	.000050	.....	.....	
9,600	48,000	.001650	.000050	.....	.....	
9,800	49,000	.001700	.000050			Elastic limit.
10,000	50,000	.002350	.000650	.....	.....	
10,200	51,000	.002800	.000450	.....	.....	
10,400	52,000	.003350	.000550	.....	.....	
10,600	53,000	.005300	.001950	.....	.....	
10,800	54,000	.007750	.002450	.....	.....	
11,000	55,000	.009250	.001500	.....	.....	
11,200	56,000	.010500	.001250	.....	.....	
11,400	57,000	.011500	.001000	.....	.....	
11,600	58,000	.012750	.001250	.....	.....	
11,800	59,000	.014000	.001250	.....	.....	
12,000	60,000	.015250	.001250	.....	.....	
12,400	62,000	.017550	.002300	.....	.....	
12,800	64,000	.020000	.002450	.....	.....	
13,200	66,000	.024250	.004250	.....	.....	
13,600	68,000	.026200	.001950	.....	.....	
14,000	70,000	.029550	.003350	.....	.....	
14,400	72,000	.033500	.003950	.....	.....	
14,800	74,000	.037500	.004000	.....	.....	
15,200	76,000	.044500	.007000	.....	.....	
15,600	78,000	.050600	.006100	.....	.....	
16,000	80,000	.059250	.008650	.....	.....	
16,400	82,000	.071000	.011750	.....	.....	
16,800	84,000	.0950	.0240			Tensile strength.
16,950	84,750	.1350	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	84,750
Elastic limit per square inch of original section	do....	49,000
Elongation per inch after rupture	inch..	0.2100
Elongation per inch under strain at elastic limit	do....	.001700
Reduction in diameter at point of rupture	do....	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	$\frac{1}{2}$ -inch from neck	
Character of broken surface	silky; trace of granulation	
Elongation of inch sections	.30*, .12	

No. 2250.

Marks, $\frac{32}{M} T_1^4$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.	.....	
2,000	10,000	.000400	.000200	0.	.....	
3,000	15,000	.000550	.000150	0.	.....	
4,000	20,000	.000700	.000150	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001400	.000200	0.	.....	
9,000	45,000	.001550	.000150	0.	.....	
9,200	46,000	.001550	0.	.....	.....	
9,400	47,000	.001650	.000100	.....	.....	Elastic limit.
9,600	48,000	.002850	.001200	.....	.....	
9,800	49,000	.003500	.000650	.....	.....	
10,000	50,000	.004700	.001200	.....	.....	
10,200	51,000	.005200	.001500	.....	.....	
10,400	52,000	.006350	.001150	.....	.....	
10,600	53,000	.007900	.001550	.....	.....	
10,800	54,000	.009700	.001800	.....	.....	
11,000	55,000	.011000	.001300	.....	.....	
11,200	56,000	.012250	.001250	.....	.....	
11,400	57,000	.013550	.001300	.....	.....	
11,600	58,000	.015000	.001450	.....	.....	
11,800	59,000	.016000	.001000	.....	.....	
12,000	60,000	.017250	.001250	.....	.....	
12,400	62,000	.019800	.002550	.....	.....	
12,800	64,000	.022600	.002800	.....	.....	
13,200	66,000	.026150	.003550	.....	.....	
13,600	68,000	.029750	.003600	.....	.....	
14,000	70,000	.034000	.004250	.....	.....	
14,400	72,000	.039250	.005250	.....	.....	
14,800	74,000	.044000	.004750	.....	.....	
15,200	76,000	.051000	.007000	.....	.....	
15,600	78,000	.0600	.0090	.....	.....	
16,000	80,000	.0700	.0100	.....	.....	
16,400	82,000	.0950	.0250	.....	.....	
16,450	82,250	.1400	.0450	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	82,250
Elastic limit per square inch of original section.....	do....	47,000
Elongation per inch after rupture.....	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do....	.001650
Reduction in diameter at point of rupture.....	do....	.145
Reduction in area after rupture, per centum of original section.....		49.1
Position of rupture.....	$\frac{1}{2}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".34*, ".09	

No. 2230.

Marks, $\frac{32}{B} T_{15}$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000550	.000300	0.	.....	
4,000	20,000	.000650	.000100	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001150	.000200	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001450	.000150	0.	.....	
10,000	50,000	.001600	.000150	0.		Elastic limit.
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001800	.000100	.....	.....	
10,800	54,000	.002450	.000650	.....	.....	
11,000	55,000	.004250	.001800	.....	.....	
11,200	56,000	.006650	.002400	.....	.....	
11,400	57,000	.008100	.001450	.....	.....	
11,600	58,000	.009350	.001250	.....	.....	
11,800	59,000	.010600	.001250	.....	.....	
12,000	60,000	.011800	.001200	.....	.....	
12,400	62,000	.014200	.002400	.....	.....	
12,800	64,000	.016800	.002600	.....	.....	
13,200	66,000	.020000	.003200	.....	.....	
13,600	68,000	.023200	.003200	.....	.....	
14,000	70,000	.026100	.002900			Tensile strength.
14,400	72,000	.029500	.003400	.....	.....	
14,800	74,000	.033500	.004000	.....	.....	
15,200	76,000	.037800	.004300	.....	.....	
15,600	78,000	.043000	.005200	.....	.....	
16,000	80,000	.050000	.007000	.....	.....	
16,400	82,000	.059500	.009500	.....	.....	
16,800	84,000	.0700	.0105	.....	.....	
17,170	85,850	.1200	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	85,850
Elastic limit per square inch of original section	do....	53,000
Elongation per inch after rupture	inch..	0.2100
Elongation per inch under strain at elastic limit	do....	.001800
Reduction in diameter at point of rupture	do....	.124
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	" .65 from neck	
Character of broken surface	silky	
Elongation of inch sections	" .32*, ".10	

No. 2231.

Marks, ³²T₁₅
B T₂

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001300	.000200	0.	.....	
9,000	45,000	.001450	.000150	0.	.....	
10,000	50,000	.001650	.000200	0.		Elastic limit.
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.001700	0.	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001800	.000050	.....	.....	
11,000	55,000	.001800	0.	.....	.....	
11,200	56,000	.002050	.000250	.....	.....	
11,400	57,000	.003000	.000950	.....	.....	
11,600	58,000	.003550	.000550	.....	.....	
11,800	59,000	.006500	.002950	.....	.....	
12,000	60,000	.007700	.001200			Tensile strength.
12,400	62,000	.010850	.003150	.....	.....	
12,800	64,000	.012750	.001900	.....	.....	
13,200	66,000	.015250	.002500	.....	.....	
13,600	68,000	.018000	.002750	.....	.....	
14,000	70,000	.020600	.002600	.....	.....	
14,400	72,000	.023750	.003150	.....	.....	
14,800	74,000	.027000	.003250	.....	.....	
15,200	76,000	.030750	.003750	.....	.....	
15,600	78,000	.035000	.004250	.....	.....	
16,000	80,000	.040000	.005000			
16,400	82,000	.045250	.005250	.....	.....	
16,800	84,000	.053750	.008500	.....	.....	
17,200	86,000	.064000	.010250	.....	.....	
17,600	88,000	.0900	.0260	.....	.....	
17,780	88,906	.1100	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	88,900
Elastic limit per square inch of original section	do.....	55,000
Elongation per inch after rupture	inch..	0.2400
Elongation per inch under strain at elastic limit	do	.001800
Reduction in diameter at point of rupture	do.....	.134
Reduction in area after rupture, per centum of original section .....	.....	46.2
Position of rupture	inch from neck	
Character of broken surface .....	.....	silky
Elongation of inch sections .....	.....	".33*, ".15

No. 620.

Marks, $\frac{32}{B} \frac{T_{15}}{T_3}$

Length, 3'.995.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000200	.000200	0.	.....	
5,000	10,000	.000350	.000150	0.	.....	
7,500	15,000	.000500	.000150	0.	.....	
10,000	20,000	.000650	.000150	0.	.....	
12,500	25,000	.000800	.000150	0.	.....	
15,000	30,000	.001000	.000200	0.	.....	
17,500	35,000	.001200	.000200	0.	.....	
20,000	40,000	.001300	.000100	0.	.....	
22,500	45,000	.001450	.000150	0.	.....	
23,000	46,000	.001500	.000050	.....	.....	
23,500	47,000	.001500	0.	.....	.....	
24,000	48,000	.001500	0.	.....	.....	
24,500	49,000	.001550	.000050	.....	.....	
25,000	50,000	.001650	.000100	0.		Elastic limit.
25,500	51,000	.001750	.000100	.....	.....	
26,000	52,000	.001750	0.	.....	.....	
26,500	53,000	.001500	.000250	.....	.....	
27,000	54,000	.001050	.000450	.....	.....	
27,500	55,000	.000800	.000250	-.001000	-.001000	
28,000	56,000	.001000	.000200	.....	.....	
28,500	57,000	.001750	.000750	.....	.....	
29,000	58,000	.003450	.001700	.....	.....	
29,500	59,000	.004250	.000800	.....	.....	
30,000	60,000	.005650	.001400	-.003500	.004500	Ultimate strength.
46,900	93,800	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 50,000
 Compression per inch under stress at elastic limit..... inch.. 0.001650
 Ultimate strength per square inch of original section pounds.. 93,800
 Manner of failure triple flexure

No. 2232.

Marks, ³²T₁₅
M T₁

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000700	.000200	0.	.....	
6,000	30,000	.000950	.000250	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001450	.000200	0.	.....	
10,000	50,000	.001650	.000200	0.		Elastic limit.
10,200	51,000	{ .001700	.000050	.....	.....	
10,400	52,000	{ .007850	.006150	.....	.....	
10,600	53,000	.008750	.000900	.....	.....	
10,800	54,000	.009950	.001200	.....	.....	
11,000	55,000	.010500	.000550	.....	.....	
11,200	56,000	.011500	.001000	.....	.....	
11,400	57,000	.012700	.001200	.....	.....	
11,600	58,000	.013750	.001050	.....	.....	
11,800	59,000	.015350	.001600	.....	.....	
12,000	60,000	.016550	.001200	.....	.....	
12,200	62,000	.017750	.001200	.....	.....	
12,400	64,000	.020250	.002500	.....	.....	
12,600	66,000	.023250	.003000	.....	.....	
12,800	68,000	.026100	.002850	.....	.....	
13,000	70,000	.029500	.003400	.....	.....	
13,200	72,000	.033100	.003600	.....	.....	
13,400	74,000	.037500	.004400	.....	.....	
13,600	76,000	.042250	.004750	.....	.....	
13,800	78,000	.048500	.006250	.....	.....	
14,000	80,000	.056000	.007500	.....	.....	
14,200	82,000	.066000	.010000	.....	.....	
14,400	84,000	.0900	.0240			Tensile strength.
14,600		.1500	.0600	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	84,000
Elastic limit per square inch of original section.....	do....	51,000
Elongation per inch after rupture.....	inch..	0.2300
Elongation per inch under strain at elastic limit.....	do....	.001700
Reduction in diameter at point of rupture.....	do....	.124
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	$\frac{1}{2}$ inch from neck	
Character of broken surface.....	silky; traces of granulation	
Elongation of inch sections.....	".31", ".15	

No. 2233.

Marks, $\frac{32}{M} T_2$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000350	.000100	0.	.....	
4,000	20,000	.000550	.000200	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001450	.000200	0.	.....	
9,200	46,000	.001450	0.			Elastic limit.
9,400	47,000	.001500	.000050	.....	.....	
9,600	48,000	.001550	.000050	.....	.....	
9,800	49,000	.001600	.000050	.....	.....	
10,000	50,000	.001650	.000050	.....	.....	
10,200	51,000	.005600	.003950	.....	.....	
10,400	52,000	.009000	.003400	.....	.....	
10,600	53,000	.010350	.001350	.....	.....	
10,800	54,000	.011350	.001000	.....	.....	
11,000	55,000	.012200	.000850	.....	.....	
11,200	56,000	.013750	.001550	.....	.....	
11,400	57,000	.014750	.001000	.....	.....	
11,600	58,000	.015850	.001100	.....	.....	
11,800	59,000	.017100	.001250	.....	.....	
12,000	60,000	.018500	.001400	.....	.....	
12,400	62,000	.021250	.002750	.....	.....	
12,800	64,000	.024250	.003000	.....	.....	
13,200	66,000	.027550	.003300	.....	.....	
13,600	68,000	.031100	.003550	.....	.....	
14,000	70,000	.035600	.004500	.....	.....	
14,400	72,000	.040000	.004400	.....	.....	
14,800	74,000	.045600	.005600	.....	.....	
15,200	76,000	.052750	.007150	.....	.....	
15,600	78,000	.061000	.008250	.....	.....	
16,000	80,000	.0750	.0140	.....	.....	
16,400	82,000	.1050	.0300	.....	.....	
16,500	82,500	.1300	.0250			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	82,500
Elastic limit per square inch of original section	do.....	50,000
Elongation per inch after rupture	inch..	0.2050
Elongation per inch under strain at elastic limit	do.....	.001650
Reduction in diameter at point of rupture	do.....	.135
Reduction in area after rupture, per centum of original section		46.2
Position of rupture	$\frac{5}{8}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections	".31", ".10	

H. Ex. 31—8

No. 2399.

Marks, $^{32}T_{16}$
 $B T_1$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001150	.000150	.....	.....	
8,000	40,000	.001350	.000200	.....	.....	
9,000	45,000	.001550	.000200	.....	.....	
10,000	50,000	.001700	.000150			Elastic limit.
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001850	.000100	.....	.....	
10,600	53,000	.002100	.000250	.....	.....	
10,800	54,000	.002700	.000600	.....	.....	
11,000	55,000	.003550	.000850	.....	.....	
11,200	56,000	.004250	.000700	.....	.....	
11,400	57,000	.005650	.001400	.....	.....	
11,600	58,000	.007000	.001350	.....	.....	
11,800	59,000	.008050	.001050	.....	.....	
12,000	60,000	.009050	.001000	.....	.....	
12,400	62,000	.011250	.002200	.....	.....	
12,800	64,000	.013250	.002000	.....	.....	
13,200	66,000	.015900	.002650	.....	.....	
13,600	68,000	.018100	.002200	.....	.....	
14,000	70,000	.020600	.002500			Tensile strength.
14,400	72,000	.023250	.002650	.....	.....	
14,800	74,000	.026050	.002800	.....	.....	
15,200	76,000	.029500	.003450	.....	.....	
15,600	78,000	.032500	.003000	.....	.....	
16,000	80,000	.036550	.004050	.....	.....	
16,400	82,000	.042000	.005450	.....	.....	
16,800	84,000	.047000	.005000	.....	.....	
17,200	86,000	.0550	.0080	.....	.....	
17,600	88,000	.0600	.0050	.....	.....	
17,880	89,400	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	89,400
Elastic limit per square inch of original section	do....	52,000
Elongation per inch after rupture	inch..	0.0700
Elongation per inch under strain at elastic limit	do....	.001850
Reduction in diameter at point of rupture	do....	.025
Reduction in area after rupture, per centum of original section		9.5
Position of rupture	".25 from neck	
Character of broken surface	granular; flaky spot near circumference	
Elongation of inch sections	".09", ".05	

No. 2400.

Marks, $\frac{32}{B} \frac{T_{16}}{T_2}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000450	.000100	0.	.....	
5,000	25,000	.000650	.000200	0.	.....	
6,000	30,000	.000800	.000150	0.	.....	
7,000	35,000	.001000	.000200	0.	.....	
8,000	40,000	.001100	.000100	0.	.....	
9,000	45,000	.001300	.000200	.....	.....	
9,200	46,000	.001350	.000050	.....	.....	
9,400	47,000	.001400	.000050	.....	.....	
9,600	48,000	.001450	.000050	.....	.....	
9,800	49,000	.001550	.000100	.....	.....	Elastic limit.
10,000	50,000	.002050	.000500	.....	.....	
10,200	51,000	.002600	.000550	.....	.....	
10,400	52,000	.003000	.000400	.....	.....	
10,600	53,000	.004150	.001150	.....	.....	
10,800	54,000	.005600	.001450	.....	.....	
11,000	55,000	.007050	.001450	.....	.....	
11,200	56,000	.008100	.001050	.....	.....	
11,400	57,000	.009250	.001150	.....	.....	
11,600	58,000	.010150	.000900	.....	.....	
11,800	59,000	.011200	.001050	.....	.....	
12,000	60,000	.012250	.001050	.....	.....	
12,400	62,000	.014200	.001950	.....	.....	
12,800	64,000	.016250	.002050	.....	.....	
13,200	66,000	.019250	.003000	.....	.....	
13,600	68,000	.021750	.002500	.....	.....	
14,000	70,000	.024600	.002850	.....	.....	
14,400	72,000	.027850	.003250	.....	.....	
14,800	74,000	.031200	.003350	.....	.....	
15,200	76,000	.034750	.003550	.....	.....	
15,600	78,000	.039000	.004250	.....	.....	
16,000	80,000	.044500	.005500	.....	.....	
16,400	82,000	.052000	.007500	.....	.....	
16,750	83,750	.....	.....	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....pounds.. 83,750
 Elastic limit per square inch of original section.....do.... 49,000
 Elongation per inch after rupture.....inch.. 0.0600
 Elongation per inch under strain at elastic limit.....do.... .001550
 Reduction in diameter at point of rupture.....do.... .025
 Reduction in area after rupture, per centum of original section.....9.5
 Position of rupture.....".95 from neck
 Character of broken surface.....granular; contains line of flaky metal
 Elongation of inch sections.....".07*, ".05

No. 647.

Marks, $\frac{32}{B} T_{16}$

Length, 4".004.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000250	.000100	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000700	.000150	0.	.....	
15,000	30,000	.000850	.000150	0.	.....	
17,500	35,000	.001050	.000200	0.	.....	
20,000	40,000	.001200	.000150	0.	.....	
22,500	45,000	.001350	.000150	0.	.....	
24,000	48,000	.001450	.000100	.....	.....	
24,500	49,000	.001500	.000350			Elastic limit.
25,000	50,000	.002050	.000550	.....	.....	
25,500	51,000	.003050	.001000	.....	.....	
26,000	52,000	.004100	.001050	.....	.....	
26,500	53,000	.004850	.000750	.....	.....	
27,000	54,000	.006000	.001150	.....	.....	
27,500	55,000	.006800	.000800	.....	.....	
28,000	56,000	.008150	.001350			Ultimate strength.
46,500	93,000	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 49,000
 Compression per inch under stress at elastic limitinch.. 0.001500
 Ultimate strength per square inch of original sectionpounds.. 93,000
 Manner of failuretriple flexure

No. 2401.

Marks, $\frac{32}{M} \frac{T_{16}}{T_1}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001100	.000150	.....	.....	
8,000	40,000	.001250	.000150	.....	.....	
9,000	45,000	.001450	.000200	.....	.....	
10,000	50,000	.001600	.000150			Elastic limit.
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.003100	.001450	.....	.....	
10,600	53,000	.006350	.003250	.....	.....	
10,800	54,000	.007300	.000950	.....	.....	
11,000	55,000	.008250	.000950	.....	.....	
11,200	56,000	.009100	.000850	.....	.....	
11,400	57,000	.010050	.000950	.....	.....	
11,600	58,000	.011100	.001050	.....	.....	
11,800	59,000	.012100	.001000	.....	.....	
12,000	60,000	.013750	.001650			Tensile strength.
12,400	62,000	.016000	.002250	.....	.....	
12,800	64,000	.018500	.002500	.....	.....	
13,200	66,000	.021100	.002600	.....	.....	
13,600	68,000	.024000	.002900	.....	.....	
14,000	70,000	.027000	.003000	.....	.....	
14,400	72,000	.030600	.003600	.....	.....	
14,800	74,000	.034250	.003650	.....	.....	
15,200	76,000	.039000	.004750	.....	.....	
15,600	78,000	.043750	.004750	.....	.....	
16,000	80,000	.050250	.006500			
16,400	82,000	.0550	.004750	.....	.....	
16,800	84,000	.0650	.0100	.....	.....	
17,200	86,000	.0900	.0250	.....	.....	
17,380	86,900	.1400	.0500			

General summary.

Tensile strength per square inch of original section	pounds..	86,900
Elastic limit per square inch of original section	do	51,000
Elongation per inch after rupture	inch..	0.2350
Elongation per inch under strain at elastic limit	do	.001650
Reduction in diameter at point of rupture	do	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	1 inch from neck	
Character of broken surface	silky	
Elongation of inch sections	".31*, ".16	

No. 2402.

Marks, $\frac{32}{M} T_{16}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001150	.000150	0.	.....	
9,000	45,000	.001300	.000150			Elastic limit.
10,000	50,000	{ .001500	.000200	.....	.....	
		{ .002750	.001250	.....	.....	
10,200	51,000	.002650	.000900	.....	.....	
10,400	52,000	.004750	.001100	.....	.....	
10,600	53,000	.006600	.001850	.....	.....	
10,800	54,000	.007400	.000800	.....	.....	
11,000	55,000	.008500	.001100	.....	.....	
11,200	56,000	.009700	.001200	.....	.....	
11,400	57,000	.010800	.001100	.....	.....	
11,600	58,000	.012000	.001200	.....	.....	
11,800	59,000	.013500	.001500	.....	.....	
12,000	60,000	.014550	.001050	.....	.....	
12,400	62,000	.016500	.001950	.....	.....	
12,800	64,000	.019000	.002500	.....	.....	
13,200	66,000	.021250	.002250	.....	.....	
13,600	68,000	.024500	.003250	.....	.....	
14,000	70,000	.028000	.003500	.....	.....	
14,400	72,000	.031250	.003250			Tensile strength.
14,800	74,000	.035000	.003750	.....	.....	
15,200	76,000	.039250	.004250	.....	.....	
15,600	78,000	.045000	.005750	.....	.....	
16,000	80,000	.052000	.007000	.....	.....	
16,400	82,000	.0600	.0080	.....	.....	
16,800	84,000	.0750	.0150	.....	.....	
17,200	86,000	.0950	.0200	.....	.....	
17,320	86,600	.1250	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	86,600
Elastic limit per square inch of original section	do....	50,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit	do....	.001500
Reduction in diameter at point of rupture	do....	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	".40 from neck	
Character of broken surface	silky	
Elongation of inch sections	".30", ".10	

No. 2447.

Mark, $\frac{3}{4}$

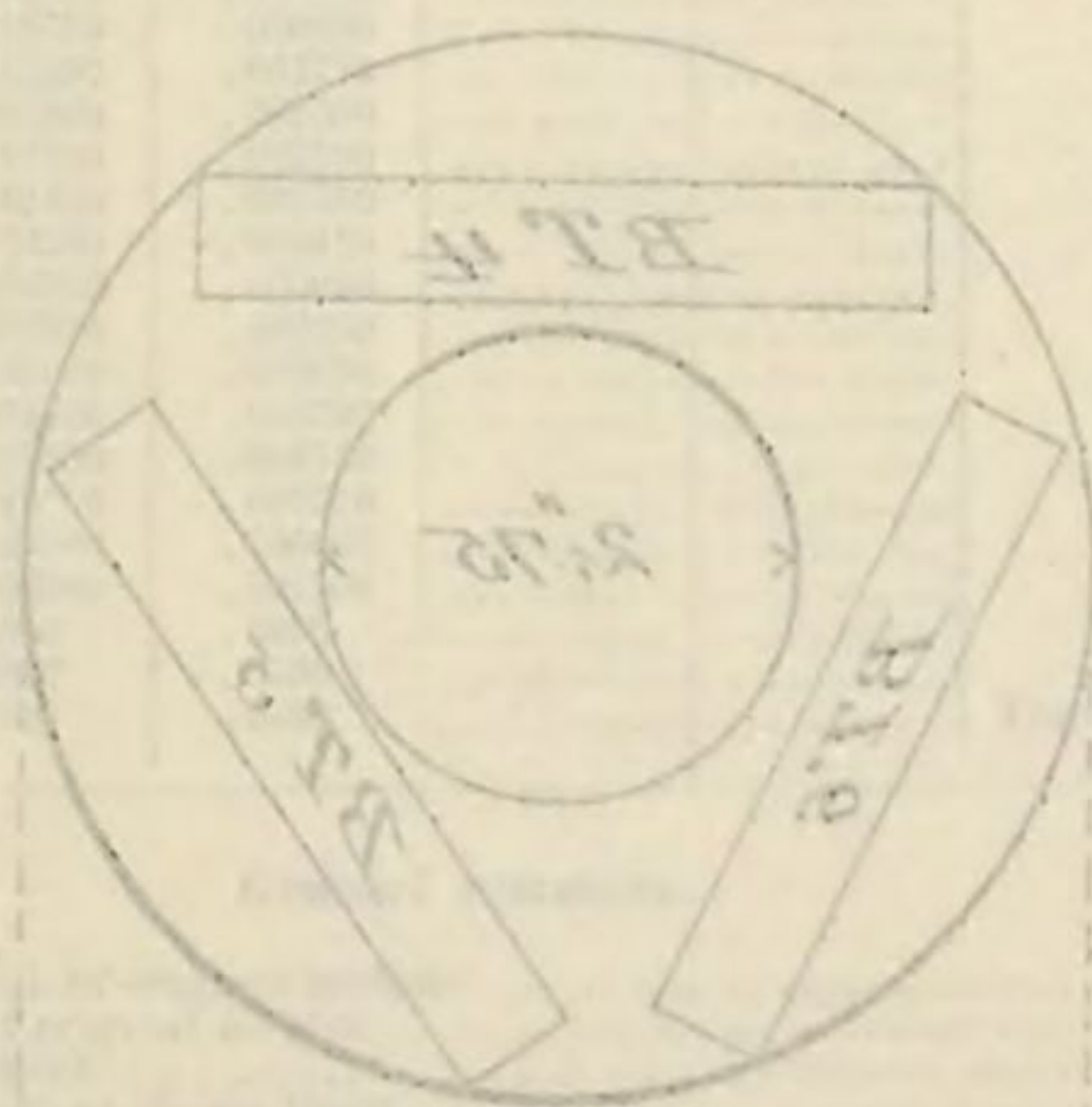
Diameter, 1.005

Sectional area, .20 square inch.

Tube No. 16 32 Rifle

Additional specimens

Breach end

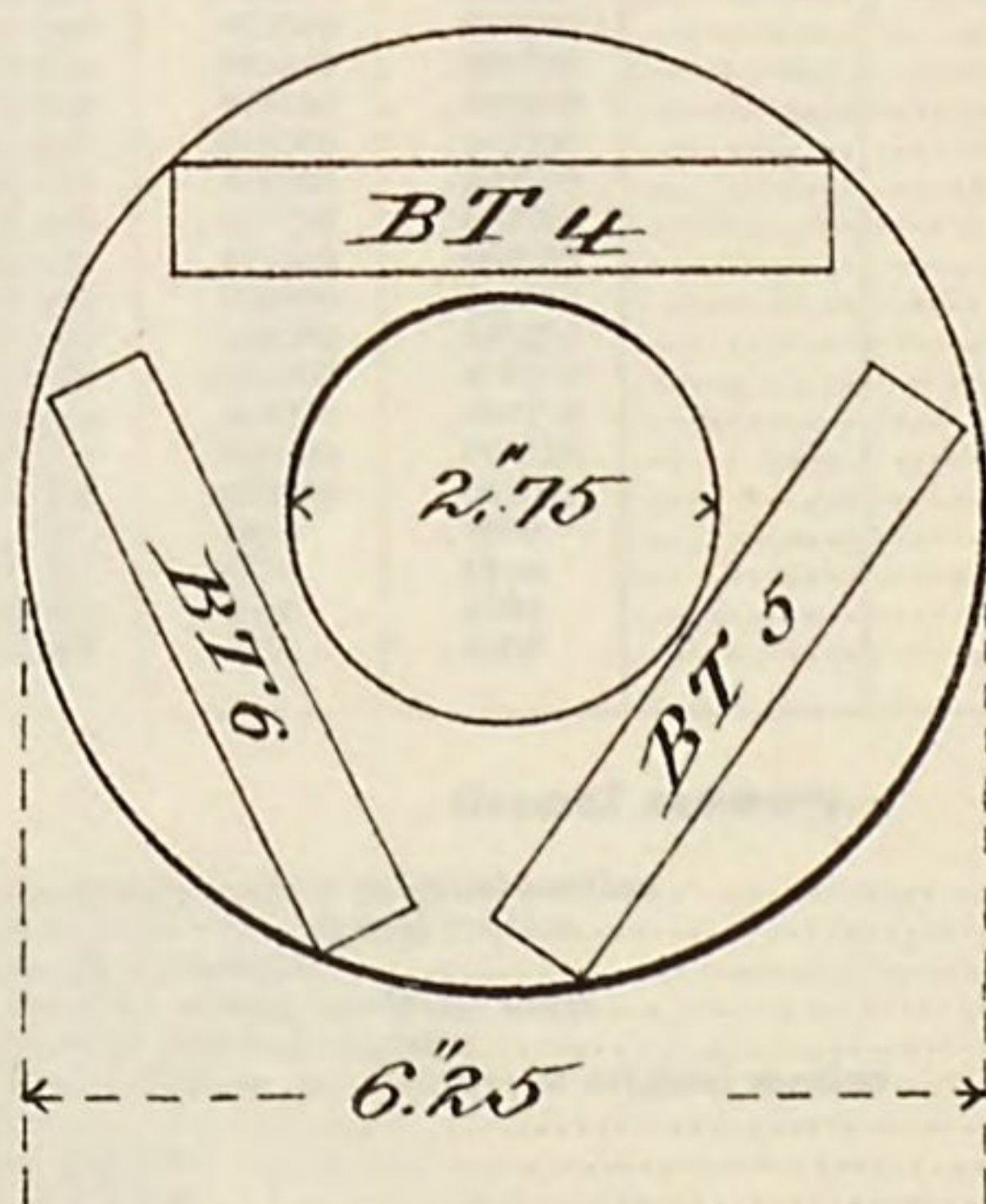


H Ex 31 40 5

Tube No. 76 3.2" Rifle

Additional specimens

Breech end



H Ex 3/ 49 2

No. 2447.

Marks, $\frac{32}{B} T_{16}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000250	.000150	0.	-----	
3,000	15,000	.000350	.000100	0.	-----	
4,000	20,000	.000550	.000200	0.	-----	
5,000	25,000	.000750	.000200	0.	-----	
6,000	30,000	.000900	.000150	0.	-----	
7,000	35,000	.001050	.000150	0.	-----	
8,000	40,000	.001200	.000150	0.	-----	
9,000	45,000	.001350	.000150	0.	-----	
10,000	50,000	.001500	.000150	-----	-----	Elastic limit.
10,200	51,000	.001700	.000200	-----	-----	
10,400	52,000	.002850	.001150	-----	-----	
10,600	53,000	.003750	.000900	-----	-----	
10,800	54,000	.004900	.001150	-----	-----	
11,000	55,000	.006100	.001200	-----	-----	
11,200	56,000	.007250	.001150	-----	-----	
11,400	57,000	.007900	.000650	-----	-----	
11,600	58,000	.009150	.001250	-----	-----	
11,800	59,000	.009900	.000750	-----	-----	
12,000	60,000	.010750	.000850	-----	-----	
12,400	62,000	.012500	.001750	-----	-----	
12,800	64,000	.015000	.002500	-----	-----	
13,200	66,000	.017100	.002100	-----	-----	
13,600	68,000	.019850	.002750	-----	-----	
14,000	70,000	.022300	.002450	-----	-----	
14,400	72,000	.025300	.003000	-----	-----	
14,800	74,000	.027550	.002250	-----	-----	
15,200	76,000	.030600	.003050	-----	-----	
15,600	78,000	.034100	.003500	-----	-----	
16,000	80,000	.038250	.004150	-----	-----	
16,400	82,000	.043500	.005250	-----	-----	
16,800	84,000	.048500	.005000	-----	-----	
17,200	86,000	.056000	.007500	-----	-----	
17,600	88,000	.0650	.0090	-----	-----	
18,000	90,000	.0800	.0150	-----	-----	Tensile strength.
18,390	91,950	.1300	.0500	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	91,950
Elastic limit per square inch of original section	do.....	51,000
Elongation per inch after rupture	inch..	0.1900
Elongation per inch under strain at elastic limit	do.....	.001700
Reduction in diameter at point of rupture	do.....	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	granular at circumference ; dull flaky center	
Elongation of inch sections	".26*, ".1	

No. 2448.

Marks, $\frac{32}{B} T_{16}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000700	.000200	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001050	.000200	0.	.....	
7,000	35,000	.001200	.000150	0.	.....	
8,000	40,000	.001400	.000200	0.	.....	
9,000	45,000	.001600	.000200	.....	.....	
9,600	48,000	.001700	.000100			Elastic limit.
9,800	49,000	.001750	.000350	.....	.....	
10,000	50,000	.001950	.000200	.....	.....	
10,200	51,000	.002200	.000250	.....	.....	
10,400	52,000	.002550	.000350	.....	.....	
10,600	53,000	.003100	.000550	.....	.....	
10,800	54,000	.003650	.000550	.....	.....	
11,000	55,000	.004200	.000550	.....	.....	
11,200	56,000	.005250	.001050	.....	.....	
11,400	57,000	.006650	.001400	.....	.....	
11,600	58,000	.007750	.001100			
11,800	59,000	.008900	.001150	.....	.....	
12,000	60,000	.009900	.001000	.....	.....	
12,400	62,000	.012100	.002200	.....	.....	
12,800	64,000	.014100	.002000	.....	.....	
13,200	66,000	.016250	.002150	.....	.....	
13,600	68,000	.018400	.002150	.....	.....	
14,000	70,000	.020600	.002200	.....	.....	
14,400	72,000	.023500	.002900	.....	.....	
14,800	74,000	.026000	.002500	.....	.....	
15,200	76,000	.028750	.002750			Tensile strength.
15,600	78,000	.032250	.003500	.....	.....	
16,000	80,000	.036400	.004150	.....	.....	
16,400	82,000	.040300	.003900	.....	.....	
16,800	84,000	.046000	.005700	.....	.....	
17,200	86,000	.052250	.006250	.....	.....	
17,600	88,000	.0600	.007750	.....	.....	
18,000	90,000	.0700	.0100	.....	.....	
18,020	90,100	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	90,100
Elastic limit per square inch of original section	do....	49,000
Elongation per inch after rupture	inch..	0.0750
Elongation per inch under strain at elastic limit	do....	.001750
Reduction in diameter at point of rupture	do....	.025
Reduction in area after rupture, per centum of original section		9.5
Position of rupture		at neck
Character of broken surface	granular; flaky spot at circumference	
Elongation of inch sections		".08, ".0

No. 668.

Marks, $\frac{32}{B} T_{16}$

Length, 4'' .004.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000067	.000067	0.	-----	
5,000	10,000	.000200	.000133	0.	-----	
7,500	15,000	.000333	.000133	0.	-----	
10,000	20,000	.000500	.000167	— .000033	— .000033	
12,500	25,000	.000700	.000200	— .000067	— .000034	
15,000	30,000	.000867	.000167	— .000067	0.	
17,500	35,000	.001033	.000166	-----	-----	
20,000	40,000	.001233	.000200	-----	-----	
20,500	41,000	.001267	.000034	-----	-----	
21,000	42,000	.001300	.000033	-----	-----	Elastic limit.
21,500	43,000	.001333	.000033	-----	-----	
22,000	44,000	.001367	.000034	-----	-----	
22,500	45,000	.001400	.000033	-----	-----	
23,000	46,000	.001433	.000033	-----	-----	
23,500	47,000	.001467	.000034	-----	-----	
24,000	48,000	.001500	.000033	-----	-----	
24,500	49,000	.003467	.001967	-----	-----	
25,000	50,000	.003833	.000366	-----	-----	
25,500	51,000	.004800	.000967	-----	-----	
26,000	52,000	.005233	.000433	-----	-----	Ultimate strength.
45,600	91,200	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section pounds.. 48,000
 Compression per inch under stress at elastic limit inch.. 0.001500
 Ultimate strength per square inch of original section pounds.. 91,200
 Manner of failure triple flexure

NEW TUBE No. 16.

No. 2674.

Marks, ^{32 R₁₆ T}_{B T₇}

Diameter, 1.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001050	.000150	.....	.....	
8,000	40,000	.001200	.000150	.....	.....	
8,200	41,000	.001250	.000050	.....	.....	
8,400	42,000	.001300	.000050			Elastic limit.
8,600	43,000	.001350	.000050	.....	.....	
8,800	44,000	.001350	0.	.....	.....	
9,000	45,000	.001400	.000050	.....	.....	
9,200	46,000	.001450	.000050	.....	.....	
9,400	47,000	.001500	.000050	.....	.....	
9,600	48,000	.001750	.000250	.....	.....	
9,800	49,000	.002700	.000950	.....	.....	
10,000	50,000	.003850	.001450	.....	.....	
10,200	51,000	.004750	.000900	.....	.....	
10,400	52,000	.005500	.000750			Tensile strength.
10,600	53,000	.006250	.000850	.....	.....	
10,800	54,000	.007300	.000950	.....	.....	
11,000	55,000	.008100	.000800	.....	.....	
11,200	56,000	.009000	.000900	.....	.....	
11,400	57,000	.009900	.000900	.....	.....	
11,600	58,000	.010850	.000950	.....	.....	
11,800	59,000	.011650	.000800	.....	.....	
12,000	60,000	.012650	.001000	.....	.....	
12,400	62,000	.014550	.001900	.....	.....	
12,800	64,000	.017000	.002450			Tensile strength.
13,200	66,000	.019000	.002000	.....	.....	
13,600	68,000	.021150	.002150	.....	.....	
14,000	70,000	.023600	.002450	.....	.....	
14,400	72,000	.026500	.002900	.....	.....	
14,800	74,000	.029300	.002800	.....	.....	
15,200	76,000	.032250	.002950	.....	.....	
15,600	78,000	.036000	.003750	.....	.....	
16,000	80,000	.040250	.004250	.....	.....	
16,400	82,000	.0450	.004750	.....	.....	
16,800	84,000	.0525	.0075			Tensile strength.
17,200	86,000	.0600	.0075	.....	.....	
17,600	88,000	.0750	.0150	.....	.....	
18,000	90,000	.0950	.0200	.....	.....	
18,220	91,100	.1400	.0450	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	91,100
Elastic limit per square inch of original section	do....	47,000
Elongation per inch after rupture	inch..	0.2050
Elongation per inch under strain at elastic limit	do....	.001500
Reduction in diameter at point of rupture	do....	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture		.60 from neck
Character of broken surface		granular, 60 per centum; silky, 40 per centum
Elongation of inch sections		.12, .29*

No. 2675.

Marks, $\frac{32 R_{16} T}{B T_8}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	.....	.....	
8,000	40,000	.001200	.000150	.....	.....	
8,200	41,000	.001250	.000050	.....	.....	
8,400	42,000	.001300	.000050	.....	.....	
8,600	43,000	.001350	.000050	.....	.....	
8,800	44,000	.001350	0.	.....	.....	
9,000	45,000	.001400	.000050	.....	.....	
9,200	46,000	.001450	.000050	.....	.....	
9,400	47,000	.001500	.000050			Elastic limit.
9,600	48,000	.002100	.000600	.....	.....	
9,800	49,000	.003150	.001050	.....	.....	
10,000	50,000	.004550	.001400	.....	.....	
10,200	51,000	.005350	.000800	.....	.....	
10,400	52,000	.006150	.000800	.....	.....	
10,600	53,000	.007100	.000950	.....	.....	
10,800	54,000	.007900	.000800	.....	.....	
11,000	55,000	.008750	.000850	.....	.....	
11,200	56,000	.009550	.000800	.....	.....	
11,400	57,000	.010500	.000950	.....	.....	
11,600	58,000	.011400	.000900	.....	.....	
11,800	59,000	.012400	.001000	.....	.....	
12,000	60,000	.013300	.000900	.....	.....	
12,400	62,000	.016000	.002700	.....	.....	
12,800	64,000	.017900	.001900	.....	.....	
13,200	66,000	.019500	.001600	.....	.....	
13,600	68,000	.022100	.002600	.....	.....	
14,000	70,000	.024500	.002400	.....	.....	
14,400	72,000	.027000	.002500	.....	.....	
14,800	74,000	.030100	.003100	.....	.....	
15,200	76,000	.033500	.003400	.....	.....	
15,600	78,000	.037350	.003850	.....	.....	
16,000	80,000	.041500	.004150	.....	.....	
16,400	82,000	.047000	.005500	.....	.....	
16,800	84,000	.0550	.0080	.....	.....	
17,200	86,000	.0600	.0050	.....	.....	
17,600	88,000	.0800	.2000	.....	.....	
18,000	90,000	.1050	.0250			Tensile strength.
18,150	90,750	.1550	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	90,750
Elastic limit per square inch of original section	do....	47,000
Elongation per inch after rupture	inch..	0.2150
Elongation per inch under strain at elastic limit	do....	.001500
Reduction in diameter at point of rupture	do....	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	1 inch from neck	
Character of broken surface	silky, 60 per centum; granular, 40 per centum	
Elongation of inch sections	" .13, ".30*	

No. 702.

Marks, $\frac{32}{B} R_{16} T$

Length, 4".

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000133	.000133	0.	.....	
5,000	10,000	.000300	.000167	0.	.....	
7,500	15,000	.000467	.000167	0.	.....	
10,000	20,000	.000633	.000166	0.	.....	
12,500	25,000	.000800	.000167	0.	.....	
15,000	30,000	.000967	.000167	0.	.....	
17,500	35,000	.001133	.000166	0.	.....	
20,000	40,000	.001267	.000134	.....	.....	
20,500	41,000	.001300	.000033	.....	.....	
21,000	42,000	.001333	.000033	.....	.....	
21,500	43,000	.001367	.000034	.....	.....	
22,000	44,000	.001400	.000033	.....	.....	
22,500	45,000	.001433	.000033	.....	.....	
23,000	46,000	.001467	.000034	.....	.....	
23,500	47,000	.001500	.000033			Elastic limit.
24,000	48,000	.002500	.001000	.....	.....	
24,500	49,000	.003233	.000733	.....	.....	
25,000	50,000	.003733	.000500	.....	.....	
25,500	51,000	.004400	.000667	.....	.....	
26,000	52,000	.005333	.000933			Ultimate strength.
45,210	90,420	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds. 47,000
 Compression per inch under stress at elastic limit inch. 0.001500
 Ultimate strength, per square inch of original section pounds. 90,420
 Manner of failure triple flexure

No. 2676.

Marks, $\frac{32}{M} \frac{R_{16}}{T_3}$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001100	.000150	.....	.....	
8,000	40,000	.001300	.000200	.....	.....	
8,200	41,000	.001350	.000050	.....	.....	
8,400	42,000	.001400	.000050	.....	.....	
8,600	43,000	.001500	.000100	.....	.....	
8,800	44,000	.001550	.000050	.....	.....	
9,000	45,000	.001550	0.	.....	.....	
9,200	46,000	.001650	.000100	.....	.....	
9,400	47,000	.001800	.000150			Elastic limit.
9,600	48,000	.002400	.000600	.....	.....	
9,800	49,000	.003500	.001100	.....	.....	
10,000	50,000	.005050	.001550	.....	.....	
10,200	51,000	.006000	.000950	.....	.....	
10,400	52,000	.007000	.001000	.....	.....	
10,600	53,000	.008000	.001000	.....	.....	
10,800	54,000	.008900	.000900	.....	.....	
11,000	55,000	.010000	.001100	.....	.....	
11,200	56,000	.010600	.000600	.....	.....	
11,400	57,000	.011600	.001000	.....	.....	
11,600	58,000	.012600	.001000	.....	.....	
11,800	59,000	.013650	.001050	.....	.....	
12,000	60,000	.014800	.001150	.....	.....	
12,400	62,000	.017000	.002200	.....	.....	
12,800	64,000	.019500	.002500	.....	.....	
13,200	66,000	.022050	.002550	.....	.....	
13,600	68,000	.024550	.002500	.....	.....	
14,000	70,000	.027350	.002800	.....	.....	
14,400	72,000	.030850	.003500	.....	.....	
14,800	74,000	.034400	.003550	.....	.....	
15,200	76,000	.038750	.004350	.....	.....	
15,600	78,000	.043750	.005000	.....	.....	
16,000	80,000	.0500	.006250	.....	.....	
16,400	82,000	.0550	.0050	.....	.....	
16,800	84,000	.0650	.0100	.....	.....	
17,200	86,000	.0900	.0250	.....	.....	
17,430	87,150	.1350	.0450			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	87,150
Elastic limit per square inch of original section	do....	47,000
Elongation per inch after rupture	inch..	0.2400
Elongation per inch under strain at elastic limit	do....	.001800
Reduction in diameter at point of rupture	do....	.144
Reduction in area after rupture, per centum of original section		49.1
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface .....	.....	silky
Elongation of inch sections .....	.....	".11, ".37*

No. 2677.

Marks, ³²R₁₆ TDiameter, ^MT₄ .505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000800	.000250	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001050	.000100	0.	.....	
8,000	40,000	.001250	.000200	0.	.....	
8,200	41,000	.001300	.000050	.....	.....	
8,400	42,000	.001350	.000050	.....	.....	
8,600	43,000	.001450	.000100	.....	.....	
8,800	44,000	.001500	.000050	.....	.....	
9,000	45,000	.001650	.000150			Elastic limit.
9,200	46,000	.002700	.001050	.....	.....	
9,400	47,000	.003600	.000900	.....	.....	
9,600	48,000	.005000	.001400	.....	.....	
9,800	49,000	.006100	.001100	.....	.....	
10,000	50,000	.007100	.001000	.....	.....	
10,200	51,000	.008000	.000900	.....	.....	
10,400	52,000	.008800	.000800	.....	.....	
10,600	53,000	.009850	.001050	.....	.....	
10,800	54,000	.011000	.001150	.....	.....	
11,000	55,000	.011750	.000750	.....	.....	
11,200	56,000	.012650	.000900	.....	.....	
11,400	57,000	.014000	.001350	.....	.....	
11,600	58,000	.015000	.001000	.....	.....	
11,800	59,000	.016250	.001250	.....	.....	
12,000	60,000	.017200	.000950			Tensile strength.
12,400	62,000	.019750	.002550	.....	.....	
12,800	64,000	.022100	.002350	.....	.....	
13,200	66,000	.025050	.002950	.....	.....	
13,600	68,000	.027900	.002850	.....	.....	
14,000	70,000	.031500	.002600	.....	.....	
14,400	72,000	.035600	.004100	.....	.....	
14,800	74,000	.039750	.004150	.....	.....	
15,200	76,000	.045250	.005500	.....	.....	
15,600	78,000	.0550	.009750	.....	.....	
16,000	80,000	.0625	.0075	.....	.....	
16,400	82,000	.0750	.0125	.....	.....	
16,800	84,000	.0950	.0200	.....	.....	
17,010	85,050	.1350	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	85,050
Elastic limit per square inch of original section	do....	45,000
Elongation per inch after rupture	inch...	0.2150
Elongation per inch under strain at elastic limit	do....	.001650
Reduction in diameter at point of rupture	do....	.135
Reduction in area after rupture, per centum of original section		46.2
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections	.32*, .11	

No. 2234.

Marks, $\frac{32}{B} T_{17}$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000400	.000100	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001150	.000200	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001500	.000200	0.	.....	
9,200	46,000	.001550	.000050	.....	.....	
9,400	47,000	.001650	.000100	.....	.....	
9,600	48,000	.001650	0.	.....	.....	
9,800	49,000	.001750	.000100			Elastic limit.
10,000	50,000	.001950	.000200	.....	.....	
10,200	51,000	.003700	.001750	.....	.....	
10,400	52,000	.005600	.001900	.....	.....	
10,600	53,000	.006700	.001100	.....	.....	
10,800	54,000	.007850	.001150	.....	.....	
11,000	55,000	.008900	.001050	.....	.....	
11,200	56,000	.010000	.001100	.....	.....	
11,400	57,000	.011150	.001150	.....	.....	
11,600	58,000	.012250	.001100	.....	.....	
11,800	59,000	.013550	.001300	.....	.....	
12,000	60,000	.014750	.001200	.....	.....	
12,400	62,000	.017550	.002800	.....	.....	
12,800	64,000	.020250	.002700	.....	.....	
13,200	66,000	.023200	.002950	.....	.....	
13,600	68,000	.026200	.003000	.....	.....	
14,000	70,000	.029750	.003550	.....	.....	
14,400	72,000	.033500	.003750	.....	.....	
14,800	74,000	.038000	.004500	.....	.....	
15,200	76,000	.043500	.005500	.....	.....	
15,600	78,000	.051000	.007500	.....	.....	
16,000	80,000	.059000	.008000	.....	.....	
16,400	82,000	.0750	.0160	.....	.....	
16,800	84,000	.0950	.0200	.....	.....	
16,920	84,600	.1350	.4000			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	84,600
Elastic limit per square inch of original section	do....	49,000
Elongation per inch after rupture.....	inch..	0.2350
Elongation per inch under strain at elastic limit.....	do....	.001750
Reduction in diameter at point of rupture.....	do....	.114
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture	".80 from neck	
Character of broken surface.....	granular, 50 per centum; dull, silky, 50 per centum	
Elongation of inch sections.....	".32*, ".15	

No. 2235.

Marks, $\frac{32}{B} T_{17}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001100	.000200	0.	.....	
8,000	40,000	.001300	.000200	0.	.....	
9,000	45,000	.001450	.000150	0.	.....	
9,200	46,000	.001500	.000050	.....	.....	
9,400	47,000	.001550	.000050	.....	.....	
9,600	48,000	.001600	.000050	.....	.....	
9,800	49,000	.001650	.000050			Elastic limit.
10,000	50,000	.002850	.001200	.....	.....	
10,200	51,000	.005100	.002250	.....	.....	
10,400	52,000	.007000	.001900	.....	.....	
10,600	53,000	.008100	.001100	.....	.....	
10,800	54,000	.008750	.000650	.....	.....	
11,000	55,000	.009600	.000850	.....	.....	
11,200	56,000	.010600	.001000	.....	.....	
11,400	57,000	.011850	.001250	.....	.....	
11,600	58,000	.013100	.001250	.....	.....	
11,800	59,000	.014650	.001550	.....	.....	
12,000	60,000	.016250	.001600	.....	.....	
12,400	62,000	.018750	.002500	.....	.....	
12,800	64,000	.021500	.002750	.....	.....	
13,200	66,000	.024600	.003100	.....	.....	
13,600	68,000	.027750	.003150	.....	.....	
14,000	70,000	.031750	.004000	.....	.....	
14,400	72,000	.035750	.004000	.....	.....	
14,800	74,000	.041250	.005500	.....	.....	
15,200	76,000	.047000	.005750	.....	.....	
15,600	78,000	.055000	.008000	.....	.....	
16,000	80,000	.0650	.0100	.....	.....	
16,400	82,000	.0900	.0250	.....	.....	
16,570	82,850	.1400	.0500			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	82,850
Elastic limit per square inch of original section	do.....	49,000
Elongation per inch after rupture	inch..	0.2150
Elongation per inch under strain at elastic limit	do.....	.001650
Reduction in diameter at point of rupture	do.....	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	silky, 90 per centum; granular, 10 per centum	
Elongation of inch sections.....	" .30*, ".13	

No. 621.

Marks, $^{32}T_{17}$
 $B T_3$

Length, 3".999.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000200	.000200	0.	.....	
5,000	10,000	.000400	.000200	0.	.....	
7,500	15,000	.000550	.000150	0.	.....	
10,000	20,000	.000750	.000200	0.	.....	
12,500	25,000	.000950	.000200	0.	.....	
15,000	30,000	.001100	.000150	0.	.....	
17,500	35,000	.001300	.000200	.000050	.000050	
20,000	40,000	.001500	.000200	.000050	0.	
20,500	41,000	.001500	0.	.....	.....	
21,000	42,000	.001550	.000050	.....	.....	
21,500	43,000	.001600	.000050	.....	.....	
22,000	44,000	.001650	.000050	.....	.....	
22,500	45,000	.001700	.000050	.000050	0.	
23,000	46,000	.001750	.000050	.....	.....	
23,500	47,000	.001700	.000050	.....	.....	
24,000	48,000	.001750	.000050			Elastic limit.
24,500	49,000	.002000	.000250	.....	.....	
25,000	50,000	.003000	.001000	.001300	.001250	
25,500	51,000	.004300	.001300	.....	.....	
26,000	52,000	.006200	.001900	.....	.....	
26,500	53,000	.007000	.000800			Ultimate strength.
27,000	54,000	.008000	.001000	.....	.....	
27,500	55,000	.008950	.000950	.006900	.005600	
44,400	88,800	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 48,000
 Compression per inch under stress at elastic limit..... inch.. 0.001750
 Ultimate strength per square inch of original section..... pounds.. 88,800
 Manner of failure triple flexure

H. Ex. 31—9

No. 2236.

Marks, $\frac{32}{M} T_{17}$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001400	.000300	.000050	.000050	
8,200	41,000	.001450	.000050	.....	.....	
8,400	42,000	.001500	.000050	.....	.....	
8,600	43,000	.001550	.000050	.....	.....	
8,800	44,000	.001600	.000050	.....	.....	Elastic limit.
9,000	45,000	.003150	.001550	.....	.....	
9,200	46,000	.003700	.000550	.....	.....	
9,400	47,000	.004650	.000950	.....	.....	
9,600	48,000	.006650	.002000	.....	.....	
9,800	49,000	.007750	.001100	.....	.....	
10,000	50,000	.008950	.001200	.....	.....	
10,200	51,000	.010000	.001050	.....	.....	
10,400	52,000	.011050	.001050	.....	.....	
10,600	53,000	.012050	.001000	.....	.....	
10,800	54,000	.013100	.001050	.....	.....	
11,000	55,000	.014250	.001150	.....	.....	
11,200	56,000	.015350	.001100	.....	.....	
11,400	57,000	.016600	.001250	.....	.....	
11,600	58,000	.018250	.001650	.....	.....	
11,800	59,000	.019500	.001250	.....	.....	
12,000	60,000	.020850	.001350	.....	.....	
12,400	62,000	.024000	.003150	.....	.....	
12,800	64,000	.026850	.002850	.....	.....	
13,200	66,000	.030150	.003300	.....	.....	
13,600	68,000	.034000	.003850	.....	.....	
14,000	70,000	.038500	.004500	.....	.....	
14,400	72,000	.044250	.005750	.....	.....	
14,800	74,000	.050600	.006350	.....	.....	
15,200	76,000	.059000	.008400	.....	.....	
15,600	78,000	.0800	.0210	.....	.....	
16,000	80,000	.0950	.0150	.....	.....	
16,250	81,250	.1350	.0400	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	81,256
Elastic limit per square inch of original section.....	do....	44,006
Elongation per inch after rupture.....	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do....	.001600
Reduction in diameter at point of rupture.....	do....	.124
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	$\frac{3}{8}$ inch from neck	
Character of broken surface.....	silky; slightly granular	
Elongation of inch sections.....	".31*, ".12	

No. 2237.

Marks, $\frac{32}{M} T_{17}$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	.000000	.000000	
2,000	10,000	.000400	.000250	.000050	.000050	
3,000	15,000	.000600	.000200	.000050	0.	
4,000	20,000	.000800	.000200	.000050	0.	
5,000	25,000	.000950	.000150	.000050	0.	
6,000	30,000	.001100	.000150	.000050	0.	
7,000	35,000	.001300	.000200	.000050	0.	
8,000	40,000	.001550	.000250	.000100	.000050	
9,000	45,000	.001700	.000150	.000100	0.	Elastic limit.
9,200	46,000	.002500	.000800	.....	.....	
9,400	47,000	.003750	.001250	.....	.....	
9,600	48,000	.006250	.002500	.....	.....	
9,800	49,000	.007500	.001250	.....	.....	
10,000	50,000	.008750	.001250	.....	.....	
10,200	51,000	.009500	.000750	.....	.....	
10,400	52,000	.010500	.001000	.....	.....	
10,600	53,000	.011400	.000900	.....	.....	
10,800	54,000	.012300	.000900	.....	.....	
11,000	55,000	.013750	.001450			
11,200	56,000	.015100	.001350	.....	.....	
11,400	57,000	.016250	.001150	.....	.....	
11,600	58,000	.017350	.001100	.....	.....	
11,800	59,000	.018800	.001450	.....	.....	
12,000	60,000	.020850	.002050	.....	.....	
12,400	62,000	.023000	.002150	.....	.....	
12,800	64,000	.026100	.003100	.....	.....	
13,200	66,000	.029650	.003550	.....	.....	
13,600	68,000	.033750	.004100	.....	.....	
14,000	70,000	.038000	.004250			
14,400	72,000	.043750	.005750	.....	.....	
14,800	74,000	.050250	.006500	.....	.....	
15,200	76,000	.0600	.009750	.....	.....	
15,600	78,000	.0800	.0200	.....	.....	
16,000	80,000	.1000	.0200	.....	.....	
16,190	80,950	.1350	.0350	.....	.....	
						Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	80,950
Elastic limit per square inch of original section.....	do.....	45,000
Elongation per inch after rupture.....	inch..	0.2250
Elongation per inch under strain at elastic limit	do.....	.001700
Reduction in diameter at point of rupture.....	do.....	.134
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture	"	.65 from neck
Character of broken surface.....	silky; slightly granular	
Elongation of inch sections.....	"	.35*, ".10

No. 2264.

Marks, $\frac{32}{B} T_{18}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000700	.000150	0.	.....	
5,000	25,000	.000900	.000200	0.	.....	
6,000	30,000	.001050	.000150	0.	.....	
7,000	35,000	.001200	.000150	0.	.....	
8,000	40,000	.001400	.000200	0.	.....	
9,000	45,000	.001550	.000150	0.	.....	
9,200	46,000	.001600	.000050	.....	.....	
9,400	47,000	.001700	.000100	.....	.....	
9,600	48,000	.001950	.000250			Elastic limit.
9,800	49,000	.001950	0.	.....	.....	
10,000	50,000	.003000	.001050	.....	.....	
10,200	51,000	.004100	.001100	.....	.....	
10,400	52,000	.005600	.001500	.....	.....	
10,600	53,000	.006800	.001200	.....	.....	
10,800	54,000	.008050	.001250	.....	.....	
11,000	55,000	.009050	.001000	.....	.....	
11,200	56,000	.010000	.000950	.....	.....	
11,400	57,000	.011050	.001050	.....	.....	
11,600	58,000	.012050	.001000	.....	.....	
11,800	59,000	.013050	.001000	.....	.....	
12,000	60,000	.014000	.000950	.....	.....	
12,400	62,000	.016050	.002050	.....	.....	
12,800	64,000	.018350	.002300	.....	.....	
13,200	66,000	.021000	.002650	.....	.....	
13,600	68,000	.023550	.002550	.....	.....	
14,000	70,000	.027000	.003450	.....	.....	
14,400	72,000	.030100	.003100	.....	.....	
14,800	74,000	.033100	.003000	.....	.....	
15,200	76,000	.037800	.004700	.....	.....	
15,600	78,000	.042250	.004450	.....	.....	
16,000	80,000	.048050	.005800	.....	.....	
16,400	82,000	.056000	.007950	.....	.....	
16,800	84,000	.0650	.0090	.....	.....	
17,200	86,000	.0850	.0200	.....	.....	
17,520	87,600	.1300	.0450			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	87,600
Elastic limit per square inch of original section	do....	48,000
Elongation per inch after rupture	inch..	0.2100
Elongation per inch under strain at elastic limit	do....	.001700
Reduction in diameter at point of rupture	do....	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	"	.55 from neck
Character of broken surface	silky, with fine granulation at circumference	
Elongation of inch sections	"	.31*, ".11

No. 2265.

Marks, $\frac{32}{B} T_{18}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	.....	.....	
2,000	10,000	.000250	.000150	.....	.....	
3,000	15,000	.000450	.000200	.....	.....	
4,000	20,000	.000550	.000100	.....	.....	
5,000	25,000	.000750	.000200	.....	.....	
6,000	30,000	.000900	.000150	.....	.....	
7,000	35,000	.001050	.000150	.....	.....	
8,000	40,000	.001200	.000150	.....	.....	
9,000	45,000	.001350	.000150	.....	.....	
9,200	46,000	.001400	.000050	.....	.....	
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001500	.000050	.....	.....	
9,800	49,000	.001600	.000100	.....	.....	
10,000	50,000	.001700	.000100	.....	.....	Elastic limit.
10,200	51,000	.002250	.000550	.....	.....	
10,400	52,000	.002850	.000600	.....	.....	
10,600	53,000	.003300	.000450	.....	.....	
10,800	54,000	.004600	.001300	.....	.....	
11,000	55,000	.006200	.001600	.....	.....	
11,200	56,000	.007500	.001300	.....	.....	
11,400	57,000	.008750	.001250	.....	.....	
11,600	58,000	.009600	.000850	.....	.....	
11,800	59,000	.010300	.000700	.....	.....	
12,000	60,000	.011200	.000900	.....	.....	
12,400	62,000	.013750	.002550	.....	.....	
12,800	64,000	.015650	.001900	.....	.....	
13,200	66,000	.018150	.002500	.....	.....	
13,600	68,000	.020750	.002600	.....	.....	
14,000	70,000	.023500	.002750	.....	.....	
14,400	72,000	.026750	.003250	.....	.....	
14,800	74,000	.029350	.002600	.....	.....	
15,200	76,000	.032800	.003450	.....	.....	
15,600	78,000	.036900	.004100	.....	.....	
16,000	80,000	.041500	.004600	.....	.....	
16,400	82,000	.048750	.007250	.....	.....	
16,800	84,000	.055000	.006250	.....	.....	
17,200	86,000	.0700	.0150	.....	.....	
17,600	88,000	.0850	.0150	.....	.....	
17,840	89,200	.1200	.0350	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	89,200
Elastic limit per square inch of original section	do....	50,000
Elongation per inch after rupture	inch..	0.1850
Elongation per inch under strain at elastic limit.....	do....	.001700
Reduction in diameter at point of rupture	do....	.105
Reduction in area after rupture, per centum of original section.....		37.1
Position of rupture.....	$\frac{3}{8}$ inch from neck	
Character of broken surface.....	granular; dull center	
Elongation of inch sections	".26", ".11	

No. 632.

Marks, $\frac{32}{B} T_{18}$

Length, 4".004.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000200	.000200	0.	.....	
5,000	10,000	.000400	.000200	0.	.....	
7,500	15,000	.000600	.000200	.000050	.....	
10,000	20,000	.000750	.000150	.000050	.....	
12,500	25,000	.000900	.000150	.000100	.....	
15,000	30,000	.001100	.000200	.000100	.....	
17,500	35,000	.001300	.000200	.000150	.....	
20,000	40,000	.001500	.000200	.000250	.....	
20,500	41,000	.001550	.000050	.....	.....	
21,000	42,000	.001650	.000100	.....	.....	
21,500	43,000	.001750	.000100	.....	.....	
22,000	44,000	.001850	.000100	.....	.....	
22,500	45,000	.002000	.000150	.000400	.000150	Elastic limit.
23,000	46,000	.002150	.000150	.....	.....	
23,500	47,000	.002450	.000300	.....	.....	
24,000	48,000	.003450	.001000	.....	.....	
24,500	49,000	.005200	.001750	.....	.....	
25,000	50,000	.008200	.003000			Ultimate strength.
44,700	89,400	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 46,000
 Compression per inch under stress at elastic limit.....inch.. 0.002150
 Ultimate strength per square inch of original section.....pounds.. 89,400
 Manner of failure.....triple flexure

No. 2266.

Marks, $\frac{32}{M} T_{18}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000450	.000250	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000950	.000250	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001300	.000200	0.	.....	Elastic limit.
8,200	41,000	.001350	.000050	.....	.....	
8,400	42,000	.003400	.002050	.....	.....	
8,600	43,000	.003900	.000500	.....	.....	
8,800	44,000	.004800	.000900	.....	.....	
9,000	45,000	.006250	.001450	.....	.....	
9,200	46,000	.007550	.001300	.....	.....	
9,400	47,000	.008750	.001200	.....	.....	
9,600	48,000	.010150	.001400	.....	.....	
9,800	49,000	.011550	.001400	.....	.....	
10,000	50,000	.012500	.000950	.....	.....	
10,200	51,000	.013500	.001000	.....	.....	
10,400	52,000	.014350	.000850	.....	.....	
10,600	53,000	.015600	.000250	.....	.....	
10,800	54,000	.016500	.000900	.....	.....	
11,000	55,000	.017700	.001200	.....	.....	
11,200	56,000	.019050	.001350	.....	.....	
11,400	57,000	.020150	.001100	.....	.....	
11,600	58,000	.021550	.001400	.....	.....	
11,800	59,000	.023050	.001500	.....	.....	
12,000	60,000	.024600	.001550	.....	.....	
12,400	62,000	.028500	.003900	.....	.....	
12,800	64,000	.031750	.003250	.....	.....	
13,200	66,000	.036100	.004350	.....	.....	
13,600	68,000	.040600	.004500	.....	.....	
14,000	70,000	.046250	.005650	.....	.....	
14,400	72,000	.054500	.008250	.....	.....	
14,800	74,000	.0600	.0055	.....	.....	
15,200	76,000	.0700	.0100	.....	.....	
15,600	78,000	.1000	.0300	.....	.....	
15,850	79,250	.1400	.0400	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	79,250
Elastic limit per square inch of original section.....	do....	45,000
Elongation per inch after rupture.....	inch..	0.2050
Elongation per inch under strain at elastic limit.....	do....	.001350
Reduction in diameter at point of rupture.....	do....	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	"	.40 from neck
Character of broken surface.....	granular; dull center	
Elongation of inch sections.....		.32*, ".09

No. 2267.

Marks, $\frac{32}{M} T_{18}$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001150	.000150	0.	.....	
8,200	41,000	.001200	.000050	.....	.....	
8,400	42,000	.001200	0.	.....	.....	
8,600	43,000	.001250	.000050	.....	.....	Elastic limit.
8,800	44,000	.001300	.000050	.....	.....	
9,000	45,000	.001550	.000250	.....	.....	
9,200	46,000	.002400	.000850	.....	.....	
9,400	47,000	.003550	.001150	.....	.....	
9,600	48,000	.004250	.000700	.....	.....	
9,800	49,000	.005000	.000750	.....	.....	
10,000	50,000	.006200	.001200	.....	.....	
10,200	51,000	.007500	.001300	.....	.....	
10,400	52,000	.009000	.001500	.....	.....	
10,600	53,000	.009900	.000900	.....	.....	
10,800	54,000	.010700	.000800	.....	.....	
11,000	55,000	.011750	.001050	.....	.....	
11,200	56,000	.013000	.001250	.....	.....	
11,400	57,000	.014150	.001150	.....	.....	
11,600	58,000	.015050	.000900	.....	.....	
11,800	59,000	.016600	.001550	.....	.....	
12,000	60,000	.018250	.001650	.....	.....	
12,400	62,000	.020750	.002500	.....	.....	
12,800	64,000	.023400	.002650	.....	.....	
13,200	66,000	.027000	.003600	.....	.....	
13,600	68,000	.030600	.003600	.....	.....	
14,000	70,000	.034350	.003750	.....	.....	
14,400	72,000	.039000	.004650	.....	.....	
14,800	74,000	.044750	.005750	.....	.....	
15,200	76,000	.051100	.006350	.....	.....	
15,600	78,000	.0600	.0089	.....	.....	
16,000	80,000	.0700	.0100	.....	.....	
16,400	82,000	.1000	.0300	.....	.....	
16,480	82,400	.1350	.0350	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	82,400
Elastic limit per square inch of original section.....	do....	44,000
Elongation per inch after rupture.....	inch..	0.2050
Elongation per inch under strain at elastic limit.....	do....	.001300
Reduction in diameter at point of rupture.....	do....	.144
Reduction in area after rupture, per centum of original section.....		49.1
Position of rupture.....	$\frac{1}{2}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".32*, ".09	

No. 1184.

Marks, $\frac{32}{B} \frac{T_{19}}{T_1}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001450	.000200	.000050.	.....	
9,200	46,000	.001450	0.	.....	.....	
9,400	47,000	.001500	.000050	.....	.....	
9,600	48,000	.001550	.000050	.....	.....	
9,800	49,000	.001600	.000050	.....	.....	
10,000	50,000	.001650	.000050	.000050	0.	
10,200	51,000	.001700	.000050			Elastic limit.
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.007500	.005750	.....	.....	
10,800	54,000	.008250	.000750	.....	.....	
11,000	55,000	.009600	.001350	.007400	.007850	
11,200	56,000	.010150	.000550	.....	.....	
11,400	57,000	.010850	.000700	.....	.....	
11,600	58,000	.011950	.001100	.....	.....	
11,800	59,000	.013100	.001150	.....	.....	
12,000	60,000	.014250	.001150	.011850	.004450	
12,400	62,000	.016500	.002250	.....	.....	
12,800	64,000	.018650	.002150	.....	.....	
13,200	66,000	.021650	.003000	.....	.....	
13,600	68,000	.024950	.003300	.....	.....	
14,000	70,000	.027650	.002700	.....	.....	
14,400	72,000	.031500	.003850	.....	.....	
14,800	74,000	.035000	.003500	.....	.....	
15,200	76,000	.039300	.004300	.....	.....	
15,600	78,000	.045100	.005800	.....	.....	
16,000	80,000	.051550	.006450	.....	.....	
16,400	82,000	.059600	.008050	.....	.....	
16,800	84,000	.070000	.010400	.....	.....	
17,200	86,000	.092000	.022000			Tensile strength.
17,490	87,450	.1450	.0530	.....	.....	

General summary.

Specific gravity.....	7.8767
Tensile strength per square inch of original section.....	pounds.. 87,450
Elastic limit per square inch of original section.....	do.... 52,000
Elongation per inch after rupture.....	inch.. 0.2300
Elongation per inch under strain at elastic limit.....	do.... .001750
Reduction in diameter at point of rupture.....	do.... .125
Reduction in area after rupture, per centum of original section.....	43.3
Position of rupture.....	".55 from neck
Character of broken surface.....	silky
Elongation of inch sections.....	".32*, ".14

No. 1185.

Marks, $\frac{32}{B} T_{19}$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001050	.000200	0.	.....	
7,000	35,000	.001200	.000150	0.	.....	
8,000	40,000	.001450	.000250	.000050	.000050	
9,000	45,000	.001600	.000150	.000050	0.	Elastic limit.
10,000	50,000	.001800	.000200	.000100	.000050	
10,200	51,000	.002950	.001150	.....	.....	
10,400	52,000	.003400	.000450	.....	.....	
10,600	53,000	.006650	.003250	.....	.....	
10,800	54,000	.008200	.001550	.....	.....	
11,000	55,000	.009450	.001250	.007250	.007150	
11,200	56,000	.010100	.000650	.....	.....	
11,400	57,000	.010750	.000650	.....	.....	
11,600	58,000	.011750	.001000	.....	.....	
11,800	59,000	.013050	.001300			Tensile strength.
12,000	60,000	.014250	.001200	.011700	.004450	
12,400	62,000	.016250	.002000	.....	.....	
12,800	64,000	.018500	.002250	.....	.....	
13,200	66,000	.021550	.003050	.....	.....	
13,600	68,000	.024550	.003000	.....	.....	
14,000	70,000	.027550	.003000	.....	.....	
14,400	72,000	.030750	.003200	.....	.....	
14,800	74,000	.035250	.004500	.....	.....	
15,200	76,000	.039000	.003750	.....	.....	
15,600	78,000	.044050	.005050	.....	.....	
16,000	80,000	.051500	.007450	.....	.....	
16,400	82,000	.059000	.007500	.....	.....	
16,800	84,000	.070000	.011000	.....	.....	
17,200	86,000	.090000	.020000	.....	.....	
17,490	87,450	.1400	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	87,450
Elastic limit per square inch of original section.....	do.....	50,000
Elongation per inch after rupture.....	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do.....	.001800
Reduction in diameter at point of rupture.....	do.....	.124
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	$\frac{1}{2}$ inch from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	" .30*, ".13	

No. 565.

Marks, $^{32}T_{19}$
 $B T_3$

Length, 3'' .993.

Diameter, '' .799.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000800	.000150	0.	.....	
15,000	30,000	.000950	.000150	0.	.....	
17,500	35,000	.001100	.000150	0.	.....	
20,000	40,000	.001250	.000150	0.	.....	
22,500	45,000	.001300	.000050	0.	.....	
23,000	46,000	.001850	.000050	.....	.....	
23,500	47,000	.001400	.000050	.....	.....	
24,000	48,000	.001450	.000050	.....	.....	
24,500	49,000	.001450	0.	.....	.....	
25,000	50,000	.001500	.000050	0.	.....	
25,500	51,000	.001550	.000050	.....	.....	
26,000	52,000	.001550	0.			Elastic limit.
26,500	53,000	.005100	.003550	.....	.....	
27,000	54,000	.005400	.000300	.....	.....	
27,500	55,000	.006100	.000700	.004250	.004250	Ultimate strength.
45,450	90,900	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 52,000
 Compression per inch under stress at elastic limit inch.. 0.001550
 Ultimate strength per square inch of original section pounds.. 90,900
 Manner of failure triple flexure

No. 1186.

Marks, $^{32}T_{19}$
 $M T_1$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000350	.000100	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000700	.000200	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	0.	.....	
8,000	40,000	.001250	.000200	0.	.....	
9,000	45,000	.001400	.000150	.....	.....	
9,600	48,000	.001500	.000100			Elastic limit.
9,800	49,000	.001800	.000300	.....	.....	
10,000	50,000	.005150	.003350	.003250	.003250	
10,200	51,000	.006200	.001050	.....	.....	
10,400	52,000	.007000	.000800	.....	.....	
10,600	53,000	.007900	.000900	.....	.....	
10,800	54,000	.009100	.001200	.....	.....	
11,000	55,000	.009600	.000500	.007400	.004150	
11,200	56,000	.011200	.001600	.....	.....	
11,400	57,000	.011750	.000550	.....	.....	
11,600	58,000	.012450	.000700			Tensile strength.
11,800	59,000	.013600	.001150	.....	.....	
12,000	60,000	.014250	.000650	.011900	.004500	
12,400	62,000	.016500	.002250	.....	.....	
12,800	64,000	.018600	.002100	.....	.....	
13,200	66,000	.021750	.003150	.....	.....	
13,600	68,000	.025000	.003250	.....	.....	
14,000	70,000	.027300	.002300	.....	.....	
14,400	72,000	.030150	.002850	.....	.....	
14,800	74,000	.034500	.004350	.....	.....	
15,200	76,000	.037500	.003000			Tensile strength.
15,600	78,000	.042500	.005000	.....	.....	
16,000	80,000	.047450	.004950	.....	.....	
16,400	82,000	.053500	.006050	.....	.....	
16,800	84,000	.062500	.009000	.....	.....	
17,200	86,000	.075000	.012500	.....	.....	
17,600	88,000	.102500	.027500	.....	.....	
17,740	88,700	.137500	.035000	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	88,700
Elastic limit per square inch of original section	do....	48,000
Elongation per inch after rupture	inch..	0.2400
Elongation per inch under strain at elastic limit	do....	.001500
Reduction in diameter at point of rupture	do....	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	$\frac{3}{8}$ inch from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".35*, ".13	

No. 1187.

Marks, $\frac{32}{M} \frac{T_{19}}{T_2}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001150	.000200	0.	.....	
8,000	40,000	.001250	.000100	0.	.....	
9,000	45,000	.001400	.000150	.....	.....	
9,200	46,000	.001400	0.	.....	.....	
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001550	.000100	.....	.....	
9,800	49,000	.001600	.000050	.....	.....	
10,000	50,000	{ .001650	.000050	.....	.....	Elastic limit.
		{ .002450	.000800	.000850	.000850	
10,200	51,000	.004750	.002300	.....	.....	
10,400	52,000	.006000	.001250	.....	.....	
10,600	53,000	.007150	.001150	.....	.....	
10,800	54,000	.007750	.000600	.....	.....	
11,000	55,000	.008600	.000850	.006400	.005550	
11,200	56,000	.009350	.000750	.....	.....	
11,400	57,000	.009950	.000600	.....	.....	
11,600	58,000	.011150	.001200	.....	.....	
11,800	59,000	.012150	.001000	.....	.....	
12,000	60,000	.013100	.000950	.010850	.001450	
12,400	62,000	.015100	.002000	.....	.....	
12,800	64,000	.017300	.002200	.....	.....	
13,200	66,000	.019950	.002650	.....	.....	
13,600	68,000	.022500	.002550	.....	.....	
14,000	70,000	.025500	.003000	.....	.....	
14,400	72,000	.028500	.003000	.....	.....	
14,800	74,000	.032000	.003500	.....	.....	
15,200	76,000	.035500	.003500	.....	.....	
15,600	78,000	.040000	.004500	.....	.....	
16,000	80,000	.045000	.005000	.....	.....	
16,400	82,000	.051500	.006500	.....	.....	
16,800	84,000	.059250	.007750	.....	.....	
17,200	86,000	.069750	.010500	.....	.....	
17,600	88,000	.087000	.017250	.....	.....	
17,890	89,450	.1400	.0530	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	89,450
Elastic limit per square inch of original section.....	do....	50,000
Elongation per inch after rupture.....	inch..	0.2350
Elongation per inch under strain at elastic limit.....	do....	.001650
Reduction in diameter at point of rupture.....	do....	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....		".65 from neck
Character of broken surface.....	silky; traces of granulation	
Elongation of inch sections.....		".32*, ".15

No. 1180.

Marks, ³²T₂₀
B T₁Diameter, ¹¹.504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000700	.000100	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001350	.000150	0.	.....	
10,000	50,000	.001550	.000200	0.		Elastic limit.
10,200	51,000	.001700	.000150	.....	.....	
10,400	52,000	.002000	.000300	.....	.....	
10,600	53,000	.002300	.000300	.....	.....	
10,800	54,000	.002850	.000550	.....	.....	
11,000	55,000	.004050	.001200	.002050	.002050	
11,200	56,000	.005600	.001550	.....	.....	
11,400	57,000	.006650	.001050	.....	.....	
11,600	58,000	.007800	.001150	.....	.....	
11,800	59,000	.008900	.001100	.....	.....	
12,000	60,000	.009950	.001050	.007650	.005600	
12,400	62,000	.012000	.002050	.....	.....	
12,800	64,000	.014550	.002550	.....	.....	
13,200	66,000	.017350	.002800	.....	.....	
13,600	68,000	.019550	.002200	.....	.....	
14,000	70,000	.022300	.002750	.....	.....	
14,400	72,000	.025750	.003450	.....	.....	
14,800	74,000	.028250	.002500	.....	.....	
15,200	76,000	.032250	.004000	.....	.....	
15,600	78,000	.036000	.003750	.....	.....	
16,000	80,000	.042000	.006000	.....	.....	
16,400	82,000	.047000	.005000	.....	.....	
16,800	84,000	.054500	.007500	.....	.....	
17,200	86,000	.065750	.011250	.....	.....	
17,600	88,000	.086000	.020250	.....	.....	
17,700	88,500	.1175	.0315			Tensile strength.

General summary.

Specific gravity.....	7.8665
Tensile strength per square inch of original section.....pounds..	88,500
Elastic limit per square inch of original section.....do.....	50,000
Elongation per inch after rupture.....inch..	0.2050
Elongation per inch under strain at elastic limit.....do.....	.001550
Reduction in diameter at point of rupture.....do.....	.134
Reduction in area after rupture, per centum of original section.....	46.2
Position of rupture.....	$\frac{3}{8}$ inch from middle of stem
Character of broken surface.....	silky
Elongation of inch sections.....	".32*, ".09

No. 1181.

Marks, $\frac{32}{B} T_{20}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001050	.000200	0.	.....	
7,000	35,000	.001200	.000150	0.	.....	
8,000	40,000	.001350	.000150	.000050	.000050	
9,000	45,000	.001500	.000150	.000050	0.	
10,000	50,000	.001750	.000250	.000100	.000050	Elastic limit.
10,200	51,000	.001800	.000050	.....	.....	
10,400	52,000	.001850	.000050	.....	.....	
10,600	53,000	.002150	.000300	.....	.....	
10,800	54,000	.002600	.000450	.....	.....	
11,000	55,000	.003200	.000600	.001300	.001200	
11,200	56,000	.004250	.001050	.....	.....	
11,400	57,000	.004950	.000700	.....	.....	
11,600	58,000	.006300	.001350	.....	.....	
11,800	59,000	.007900	.001600	.....	.....	
12,000	60,000	.008400	.000500	.006100	.004800	
12,400	62,000	.010600	.002200	.....	.....	
12,800	64,000	.013050	.002450	.....	.....	
13,200	66,000	.015250	.002200	.....	.....	
13,600	68,000	.017250	.002000	.....	.....	
14,000	70,000	.019750	.002500	.....	.....	
14,400	72,000	.022500	.002750	.....	.....	
14,800	74,000	.025000	.002500	.....	.....	
15,200	76,000	.028100	.003100	.....	.....	
15,600	78,000	.031250	.003150	.....	.....	
16,000	80,000	.035000	.003750	.....	.....	
16,400	82,000	.039050	.004050	.....	.....	
16,800	84,000	.044050	.005000	.....	.....	
17,200	86,000	.050800	.006750	.....	.....	
17,600	88,000	.065000	.004200	.....	.....	
18,000	90,000	.072000	.007000	.....	.....	
18,400	92,000	.098500	.026500			Tensile strength.
18,450	92,250	.1200	.0215	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	92,250
Elastic limit per square inch of original section	do....	52,000
Elongation per inch after rupture	inch..	0.2100
Elongation per inch under strain at elastic limit	do....	.001850
Reduction in diameter at point of rupture	do....	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture		".55 from neck
Character of broken surface		silky, 85 per centum; granular, 15 per centum
Elongation of inch sections		".30*, ".12

No. 566.

Marks, ³²T₂₀
 B T₃
Length, 3'''.997.
Diameter, '''.798.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000050	.000050	0.	.....	
5,000	10,000	.000250	.000200	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000700	.000150	0.	.....	
15,000	30,000	.000850	.000150	0.	.....	
17,500	35,000	.001000	.000150	0.	.....	
20,000	40,000	.001150	.000150	0.	.....	
22,500	45,000	.001350	.000200	0.	.....	
25,000	50,000	.001600	.000250	.000050	.000050	Elastic limit.
25,500	51,000	.002500	.000900	.....	.....	
26,000	52,000	.003150	.000650	.....	.....	
26,500	53,000	.005000	.001850	.....	.....	
27,000	54,000	.006250	.001250			Ultimate strength.
27,500	55,000	.007900	.001650	.005900	.005850	
49,610	99,220	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 50,000
Compression per inch under stress at elastic limit.....inch.. 0.001600
Ultimate strength per square inch of original section.....pounds.. 99,220
Manner of failuretriple flexure

No. 1182.

Marks, $\frac{32}{M} T_{20}$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000600	.000100	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001300	.000200	0.	.....	
9,000	45,000	.001450	.000150	.000050	.000050	Elastic limit.
9,600	48,000	.001500	.000050	.....	.....	
9,800	49,000	.001550	.000050	.....	.....	
10,000	50,000	.001750	.000200	.....	.....	
10,200	51,000	.004250	.002700	.....	.....	
10,400	52,000	.005600	.001350	.....	.....	
10,600	53,000	.006600	.001000	.....	.....	
10,800	54,000	.007250	.006500	.....	.....	
11,000	55,000	.008400	.001150	.006350	.006300	
11,200	56,000	.009350	.000950	.....	.....	
11,400	57,000	.010200	.000850			
11,600	58,000	.011550	.001350	.....	.....	
11,800	59,000	.012550	.001000	.....	.....	
12,000	60,000	.013550	.001000	.011400	.005050	
12,400	62,000	.015850	.002300	.....	.....	
12,800	64,000	.018350	.002500	.....	.....	
13,200	66,000	.021200	.002850	.....	.....	
13,600	68,000	.024100	.002900	.....	.....	
14,000	70,000	.027150	.003050	.....	.....	
14,400	72,000	.031050	.003900	.....	.....	
14,800	74,000	.034250	.003200			Tensile strength.
15,200	76,000	.038750	.004500	.....	.....	
15,600	78,000	.044150	.005400	.....	.....	
16,000	80,000	.052000	.007850	.....	.....	
16,400	82,000	.060500	.008500	.....	.....	
16,800	84,000	.072500	.012000	.....	.....	
17,200	86,000	.097500	.025000	.....	.....	
17,290	86,450	.1300	.0325	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	86,450
Elastic limit per square inch of original section	do ..	49,000
Elongation per inch after rupture	inch..	0.2593
Elongation per inch under strain at elastic limit	do ..	.001550
Reduction in diameter at point of rupture	do ..	.154
Reduction in area after rupture, per centum of original section		51.9
Position of rupture	at middle of stem	
Character of broken surface	silky	
Elongation of inch sections	" .31", ".19	

H. Ex. 31—10

No. 1183.

Marks, $\frac{32}{M} T_{20}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	— .000050	— .000050	
2,000	10,000	.000200	.000100	— .000050	0.	
3,000	15,000	.000350	.000150	— .000050	0.	
4,000	20,000	.000550	.000200	— .000050	0.	
5,000	25,000	.000700	.000150	— .000050	0.	
6,000	30,000	.000850	.000150	— .000050	0.	
7,000	35,000	.001000	.000150	— .000050	0.	
8,000	40,000	.001200	.000200	— .000050	0.	
9,000	45,000	.001350	.000150	.....	.....	
9,400	47,000	.001450	.000100	.....	.....	
9,600	48,000	.001500	.000050	.....	.....	
9,800	49,000	.001550	.000050			Elastic limit.
10,000	50,000	.002000	.000450	.000350	.000400	
10,200	51,000	.002550	.000550	.....	.....	
10,400	52,000	.003700	.001150	.....	.....	
10,600	53,000	.004750	.001050	.....	.....	
10,800	54,000	.005550	.000800	.....	.....	
11,000	55,000	.006400	.000850	.004350	.004000	
11,200	56,000	.007650	.001250	.....	.....	
11,400	57,000	.008400	.000750	.....	.....	
11,600	58,000	.009250	.000850	.....	.....	
11,800	59,000	.010550	.001300	.....	.....	
12,000	60,000	.011400	.000850	.009150	.004800	
12,400	62,000	.013550	.002150	.....	.....	
12,800	64,000	.015750	.002200	.....	.....	
13,200	66,000	.018150	.002400	.....	.....	
13,600	68,000	.021000	.002850	.....	.....	
14,000	70,000	.023600	.002600	.....	.....	
14,400	72,000	.026550	.002950	.....	.....	
14,800	74,000	.029800	.003250	.....	.....	
15,200	76,000	.033050	.003250	.....	.....	
15,600	78,000	.037500	.004450	.....	.....	
16,000	80,000	.043000	.005500	.....	.....	
16,400	82,000	.048750	.005750	.....	.....	
16,800	84,000	.056000	.007250	.....	.....	
17,200	86,000	.067000	.011000	.....	.....	
17,600	88,000	.085000	.018000	.....	.....	
17,760	88,800	.1150	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	88,800
Elastic limit per square inch of original section.....	do....	49,000
Elongation per inch after rupture.....	inch..	0.2100
Elongation per inch under strain at elastic limit	do....	.001550
Reduction in diameter at point of rupture.....	do....	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	".70 from neck	
Character of broken surface.....	.....	silky
Elongation of inch sections.....	.....	".33*, ".09

No. 2258.

Marks, $\frac{32}{B} T_{12}$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	.....	.....	
2,000	10,000	.000250	.000150	.....	.....	
3,000	15,000	.000400	.000150	.....	.....	
4,000	20,000	.000600	.000200	.....	.....	
5,000	25,000	.000800	.000200	.....	.....	
6,000	30,000	.000950	.000150	.....	.....	
7,000	35,000	.001150	.000200	.....	.....	
8,000	40,000	.001350	.000200	.....	.....	
9,000	45,000	.001500	.000150	.....	.....	
10,000	50,000	.001750	.000250			Elastic limit.
10,200	51,000	.001800	.000050	.....	.....	
10,400	52,000	.002100	.000300	.....	.....	
10,600	53,000	.003350	.001250	.....	.....	
10,800	54,000	.004600	.001250	.....	.....	
11,000	55,000	.006250	.001650	.....	.....	
11,200	56,000	.007900	.001650	.....	.....	
11,400	57,000	.008900	.001000	.....	.....	
11,600	58,000	.009900	.001000	.....	.....	
11,800	59,000	.010850	.000950	.....	.....	
12,000	60,000	.011850	.001000	.....	.....	
12,400	62,000	.014150	.002300	.....	.....	
12,800	64,000	.016400	.002250	.....	.....	
13,200	66,000	.019050	.002650	.....	.....	
13,600	68,000	.021500	.002450	.....	.....	
14,000	70,000	.024250	.002750	.....	.....	
14,400	72,000	.027500	.003250	.....	.....	
14,800	74,000	.031250	.003750	.....	.....	
15,200	76,000	.035400	.004150	.....	.....	
15,600	78,000	.039750	.004350	.....	.....	
16,000	80,000	.045250	.005500	.....	.....	
16,400	82,000	.052000	.006750	.....	.....	
16,800	84,000	.0600	.0080	.....	.....	
17,200	86,000	.0700	.0100	.....	.....	
17,600	88,000	.1000	.0300	.....	.....	
17,690	88,450	.1450	.0450			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	88,450
Elastic limit per square inch of original section	do....	51,000
Elongation per inch after rupture	inch..	0.2350
Elongation per inch under strain at elastic limit	do....	.001800
Reduction in diameter at point of rupture	do....	.134
Reduction in area after rupture, per centum of original section		46.2
Position of rupture	§ inch from neck	
Character of broken surface	silky	
Elongation of inch sections	".31*, ".16	

No. 2259.

Marks, $\frac{32}{B} T_{21}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.		
2,000	10,000	.000350	.000200	0.		
3,000	15,000	.000500	.000150	0.		
4,000	20,000	.000650	.000150	— .000050	— .000050	
5,000	25,000	.000750	.000100	— .000050	0.	
6,000	30,000	.000900	.000150	— .000050	0.	
7,000	35,000	.001050	.000150	— .000050	0.	
8,000	40,000	.001200	.000150	— .000050	0.	
9,000	45,000	.001450	.000250	— .000000	.000050	
9,200	46,000	.001500	.000050			Elastic limit.
9,400	47,000	.001550	.000050	.....	.....	
9,600	48,000	.001650	.000100	.....	.....	
9,800	49,000	.002250	.000600	.....	.....	
10,000	50,000	.002700	.000450	.....	.....	
10,200	51,000	.004000	.001300	.....	.....	
10,400	52,000	.005600	.001600	.....	.....	
10,600	53,000	.007100	.001500	.....	.....	
10,800	54,000	.008000	.000900	.....	.....	
11,000	55,000	.009050	.001050	.....	.....	
11,200	56,000	.010050	.001000	.....	.....	
11,400	57,000	.011050	.001000	.....	.....	
11,600	58,000	.012100	.001050	.....	.....	
11,800	59,000	.013250	.001150	.....	.....	
12,000	60,000	.014500	.001250	.....	.....	
12,400	62,000	.016650	.002150	.....	.....	
12,800	64,000	.019050	.002400	.....	.....	
13,200	66,000	.021350	.002300	.....	.....	
13,600	68,000	.024100	.002750	.....	.....	
14,000	70,000	.027050	.002950	.....	.....	
14,400	72,000	.030600	.003350	.....	.....	
14,800	74,000	.035050	.004450	.....	.....	
15,200	76,000	.039100	.004050	.....	.....	
15,600	78,000	.044750	.005650	.....	.....	
16,000	80,000	.051100	.006350	.....	.....	
16,400	82,000	.0600	.0089	.....	.....	
16,800	84,000	.0700	.0100	.....	.....	
17,200	86,000	.0950	.0250			Tensile strength.
17,300	86,500	.1150	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	86,500
Elastic limit per square inch of original section.....	do....	48,000
Elongation per inch after rupture.....	inch..	0.2100
Elongation per inch under strain at elastic limit.....	do....	.001650
Reduction in diameter at point of rupture.....	do....	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....	".80 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".32*, ".10	

No. 631.

Marks, $\frac{32}{B} \frac{T_{21}}{T_3}$

Length, 4".002.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000200	.000200	0.	.....	
5,000	10,000	.000400	.000200	0.	.....	
7,500	15,000	.000550	.000150	0.	.....	
10,000	20,000	.000700	.000150	0.	.....	
12,500	25,000	.000850	.000150	0.	.....	
15,000	30,000	.000100	.000150	0.	.....	
17,500	35,000	.001150	.000150	0.	.....	
20,000	40,000	.001300	.000150	0.	.....	
22,500	45,000	.001450	0.	0.	.....	
23,000	46,000	.001450	.000150	.....	.....	
23,500	47,000	.001500	.000050	.....	.....	
24,000	48,000	.001550	.000050	.....	.....	
24,500	49,000	.001600	.000050	.....	.....	
25,000	50,000	.002650	.001050	.001600	.001600	Elastic limit.
25,500	51,000	.006850	.004200	.....	.....	
26,000	52,000	.009050	.002200			Ultimate strength.
44,990	89,980	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 49,000
 Compression per inch under stress at elastic limit..... inch.. 0.001600
 Ultimate strength per square inch of original section.....pounds.. 89,980
 Manner of failuretriple flexure

No. 2260.

Marks, $^{32}T_{21}$
 $M T_1$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001250	.000200	0.	.....	
9,000	45,000	.001450	.000200	0.	.....	
9,200	46,000	.001550	.000100			Elastic limit.
9,400	47,000	.001650	.000100	.....	.....	
9,600	48,000	.002150	.000500	.....	.....	
9,800	49,000	.002700	.000550	.....	.....	
10,000	50,000	.003250	.000550	.....	.....	
10,200	51,000	.003900	.000650	.....	.....	
10,400	52,000	.004900	.001000	.....	.....	
10,600	53,000	.005500	.000600	.....	.....	
10,800	54,000	.006850	.001350	.....	.....	
11,000	55,000	.009000	.002150	.....	.....	
11,200	56,000	.010500	.001500	.....	.....	
11,400	57,000	.011550	.001050	.....	.....	
11,600	58,000	.012400	.000850	.....	.....	
11,800	59,000	.013500	.001100	.....	.....	
12,000	60,000	.015000	.001500	.....	.....	
12,400	62,000	.017150	.002150	.....	.....	
12,800	64,000	.019650	.002500	.....	.....	
13,200	66,000	.022000	.002350	.....	.....	
13,600	68,000	.025000	.003000	.....	.....	
14,000	70,000	.028150	.003150	.....	.....	
14,400	72,000	.031700	.003550	.....	.....	
14,800	74,000	.035700	.004000	.....	.....	
15,200	76,000	.040750	.005050	.....	.....	
15,600	78,000	.046550	.008500	.....	.....	
16,000	80,000	.054000	.007450	.....	.....	
16,400	82,000	.0600	.0060	.....	.....	
16,800	84,000	.0800	.0200	.....	.....	
17,200	86,000	.1100	.0300	.....	.....	
17,210	86,050	.1250	.0150			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	86,050
Elastic limit per square inch of original section	do.....	47,000
Elongation per inch after rupture	inch..	0.2050
Elongation per inch under strain at elastic limit	do.....	.001650
Reduction in diameter at point of rupture	do.....	.135
Reduction in area after rupture, per centum of original section		46.2
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections	".33", ".08	

No. 2261.

Marks, $\frac{32}{M} T_{21}$ Diameter, $\frac{17}{100}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000300	.000150	0.	-----	
3,000	15,000	.000500	.000200	0.	-----	
4,000	20,000	.000700	.000200	0.	-----	
5,000	25,000	.000850	.000150	0.	-----	
6,000	30,000	.001000	.000150	0.	-----	
7,000	35,000	.001200	.000200	0.	-----	
8,000	40,000	.001400	.000200	0.	-----	
9,000	45,000	.001550	.000150	0.	-----	
9,200	46,000	.001600	.000050	-----	-----	
9,400	47,000	.001650	.000050	-----	-----	
9,600	48,000	.001850	.000200	-----	-----	
9,800	49,000	.001950	.000100	-----	-----	
10,000	50,000	.002000	.000050	-----	-----	Elastic limit.
10,200	51,000	.002500	.000500	-----	-----	
10,400	52,000	.002750	.000250	-----	-----	
10,600	53,000	.003000	.000250	-----	-----	
10,800	54,000	.003400	.000400	-----	-----	
11,000	55,000	.004300	.000900	-----	-----	
11,200	56,000	.006000	.001700	-----	-----	
11,400	57,000	.007500	.001500	-----	-----	
11,600	58,000	.008550	.001050	-----	-----	
11,800	59,000	.009600	.001050	-----	-----	
12,000	60,000	.010600	.001000	-----	-----	
12,400	62,000	.013000	.002400	-----	-----	
12,800	64,000	.015350	.002350	-----	-----	
13,200	66,000	.017750	.002400	-----	-----	
13,600	68,000	.019850	.002100	-----	-----	
14,000	70,000	.022500	.002650	-----	-----	
14,400	72,000	.025250	.002750	-----	-----	
14,800	74,000	.028250	.003000	-----	-----	
15,200	76,000	.031450	.003200	-----	-----	
15,600	78,000	.035000	.003550	-----	-----	
16,000	80,000	.039500	.004500	-----	-----	
16,400	82,000	.044750	.005250	-----	-----	
16,800	84,000	.050750	.006000	-----	-----	
17,200	86,000	.0600	.009250	-----	-----	
17,600	88,000	.0800	.0200	-----	-----	
18,000	90,000	.1000	.0200	-----	-----	
18,050	90,250	.1300	.0300	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	90,250
Elastic limit per square inch of original section	do....	50,000
Elongation per inch after rupture	inch..	0.1850
Elongation per inch under strain at elastic limit	do....	.002000
Reduction in diameter at point of rupture	do....	.115
Reduction in area after rupture, per centum of original section.		40.3
Position of rupture		" .40 from neck
Character of broken surface	silky, with fine granulation at the circumference	
Elongation of inch sections		".27*, ".10

No. 1697.

Marks, $\frac{32}{B T_1} T_{22}$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001150	.000200	0.		Elastic limit.
8,000	40,000	{ .001300	.000150	0.	.....	
		{ .005750	.004450	.....	.....	
8,200	41,000	.006950	.001200	.....	.....	
8,400	42,000	.009450	.002500	.....	.....	
8,600	43,000	.010450	.001000	.....	.....	
8,800	44,000	.011950	.001500	.....	.....	
9,000	45,000	.012550	.000600	.010700	.010700	
9,200	46,000	.013550	.001000	.....	.....	
9,400	47,000	.014000	.000450	.....	.....	
9,600	48,000	.014900	.000900	.....	.....	
9,800	49,000	.016250	.001350	.....	.....	
10,000	50,000	.017350	.001100	.015350	.004650	
10,200	51,000	.018250	.000900	.....	.....	
10,400	52,000	.019050	.000800	.....	.....	
10,600	53,000	.019750	.000700	.....	.....	
10,800	54,000	.021500	.001750	.....	.....	
11,000	55,000	.023000	.001500	.....	.....	
11,200	56,000	.024050	.001050	.....	.....	
11,400	57,000	.025300	.001250	.....	.....	
11,600	58,000	.026600	.001300	.....	.....	
11,800	59,000	.028000	.001400	.....	.....	
12,000	60,000	.029600	.001600	.....	.....	
12,400	62,000	.033100	.003500	.....	.....	
12,800	64,000	.036300	.003200	.....	.....	
13,200	66,000	.040600	.004300	.....	.....	
13,600	68,000	.045500	.004900	.....	.....	
14,000	70,000	.050850	.005350	.....	.....	
14,400	72,000	.057750	.006900	.....	.....	
14,800	74,000	.063000	.007250	.....	.....	
15,200	76,000	.076000	.011000	.....	.....	
15,600	78,000	.0950	.0190	.....	.....	
16,000	80,000	.1200	.0250	.....	.....	
16,060	80,300	.1500	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	80,300
Elastic limit per square inch of original section.....	do....	40,000
Elongation per inch after rupture.....	inch..	0.2350
Elongation per inch under strain at elastic limit.....	do ..	.001300
Reduction in diameter at point of rupture.....	do....	.114
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....	$\frac{1}{2}$ inch from middle of stem	
Character of broken surface.....	dull silky center; granular at the circumference	
Elongation of inch sections.....	".34*, ".13	

No. 1698.

Marks, $\frac{32}{B} T_2$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000700	.000100	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	0.	.....	
7,800	39,000	.001200	.000150	.....	.....	Elastic limit.
8,000	40,000	.007200	.006000	.005650	.005650	
8,200	41,000	.007850	.000650	.....	.....	
8,400	42,000	.008500	.000650	.....	.....	
8,600	43,000	.009250	.000750	.....	.....	
8,800	44,000	.010300	.001050	.....	.....	
9,000	45,000	.011300	.001000	.....	.....	
9,200	46,000	.012100	.000800	.....	.....	
9,400	47,000	.013100	.001000	.....	.....	
9,600	48,000	.014100	.001000	.....	.....	
9,800	49,000	.015250	.001150	.....	.....	
10,000	50,000	.016250	.001000	.....	.....	
10,400	52,000	.018500	.002250	.....	.....	
10,800	54,000	.020650	.002150	.....	.....	
11,200	56,000	.023600	.002950	.....	.....	
11,600	58,000	.026150	.002550	.....	.....	
12,000	60,000	.029250	.003100	.....	.....	
12,400	62,000	.032850	.008600	.....	.....	
12,800	64,000	.036750	.003900	.....	.....	
13,200	66,000	.041050	.004300	.....	.....	
13,600	68,000	.047600	.008550	.....	.....	
14,000	70,000	.052650	.005050	.....	.....	
14,400	72,000	.061000	.008350	.....	.....	
14,800	74,000	.072000	.011000	.....	.....	
15,200	76,000	.085000	.013000	.....	.....	
15,600	78,000	.1150	.0300	.....	.....	
15,980	79,900	.1750	.0600	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	79,900
Elastic limit per square inch of original section	do.....	39,000
Elongation per inch after rupture	inch..	0.2600
Elongation per inch under strain at elastic limit	do.....	.001200
Reduction in diameter at point of rupture	do.....	.124
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface	dull silky; granular at circumference	
Elongation of inch sections	".35*, ".17	

No. 578.

Marks, ³²T₂₂
B T₃Length 3''¹¹.997.Diameter, ''¹¹.798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	— .000050	— .000050	
5,000	10,000	.000250	.000150	— .000050	0.	
7,500	15,000	.000350	.000100	— .000050	0.	
10,000	20,000	.000550	.000200	— .000100	— .000050	
12,500	25,000	.000700	.000150	— .000100	0.	
15,000	30,000	.000900	.000200	— .000100	0.	
15,500	31,000	.000900	0.	.....	.....	
16,000	32,000	.000950	.000050	.....	.....	
16,500	33,000	.001000	.000050	.....	.....	
17,000	34,000	.001000	0.	.....	.....	
17,500	35,000	.001050	.000050	— .000100	0.	
18,000	36,000	.001200	.000150			Elastic limit.
18,500	37,000	.003250	.002050	.....	.....	
19,000	38,000	.004200	.000950	.....	.....	
19,500	39,000	.004950	.000750	.....	.....	
20,000	40,000	.005500	.000550	.004400	.004500	
20,500	41,000	.006250	.000750	.....	.....	
21,000	42,000	.007000	.000750	.....	.....	
21,500	43,000	.008900	.001900	.....	.....	
22,000	44,000	.009850	.000950	.....	.....	
22,500	45,000	.010750	.000900	.009550	.005150	
23,000	46,000	.011750	.001000	.....	.....	
23,500	47,000	.012350	.000600	.....	.....	
24,000	48,000	.013800	.001450	.....	.....	
24,500	49,000	.014300	.000500	.....	.....	
25,000	50,000	.015500	.001200	.013750	.004200	
25,500	51,000	.016250	.000750	.....	.....	
26,000	52,000	.017150	.000900	.....	.....	
26,500	53,000	.018150	.001000	.....	.....	
27,000	54,000	.019500	.001450	.....	.....	
27,500	55,000	.020350	.000850	.018650	.004900	
28,000	56,000	.021550	.001200	.....	.....	
28,500	57,000	.022650	.001100	.....	.....	
29,000	58,000	.024000	.001350	.....	.....	
29,500	59,000	.025500	.001500	.....	.....	
30,000	60,000	.026400	.000900	.024750	.006100	Ultimate strength.
43,800	87,600	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 36,000
 Compression per inch under stress at elastic limit.....inch.. 0.001200
 Ultimate strength per square inch of original section.....pounds.. 87,600
 Manner of failuretriple flexure

No. 1699.

Marks, $\frac{32}{MT_1} T_2$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000300	.000150	0.	-----	
3,000	15,000	.000400	.000100	0.	-----	
4,000	20,000	.000600	.000200	0.	-----	
5,000	25,000	.000700	.000100	0.	-----	
6,000	30,000	.000900	.000200	0.	-----	
7,000	35,000	.001050	.000150	0.	-----	
8,000	40,000	.001200	.000150	0.	-----	
8,200	41,000	.001250	.000050	-----	-----	
8,400	42,000	.001300	.000050	-----	-----	
8,600	43,000	.001350	.000050	-----	-----	
8,800	44,000	.001400	.000050	-----	-----	
9,000	45,000	{ .001450	.000050	.000050	.000050	Elastic limit.
		{ .003400	.001950	-----	-----	
9,200	46,000	.005400	.002000	-----	-----	
9,400	47,000	.007450	.002050	-----	-----	
9,600	48,000	.008950	.001500	-----	-----	
9,800	49,000	.009700	.000750	-----	-----	
10,000	50,000	.011000	.001300	.008950	.008900	
10,200	51,000	.011900	.000900	-----	-----	
10,400	52,000	.012400	.000500	-----	-----	
10,600	53,000	.013000	.000600	-----	-----	
10,800	54,000	.014250	.001200	-----	-----	
11,000	55,000	.015600	.001250	-----	-----	
11,200	56,000	.016600	.001350	-----	-----	
11,400	57,000	.017800	.001000	-----	-----	
11,600	58,000	.019050	.001200	-----	-----	
11,800	59,000	.020000	.000950	-----	-----	
12,000	60,000	.021400	.001400	-----	-----	
12,400	62,000	.024150	.002750	-----	-----	
12,800	64,000	.026800	.002650	-----	-----	
13,200	66,000	.030250	.003450	-----	-----	
13,600	68,000	.034700	.004450	-----	-----	
14,000	70,900	.038250	.003550	-----	-----	
14,400	72,000	.043250	.005000	-----	-----	
14,800	74,000	.049100	.005850	-----	-----	
15,200	76,000	.057000	.007900	-----	-----	
15,600	78,000	.065000	.008000	-----	-----	
16,000	80,000	.080500	.015500	-----	-----	
16,400	82,000	.104500	.024000	-----	-----	
16,680	83,400	.1600	.0555	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	83,400
Elastic limit per square inch of original section	do.	45,000
Elongation per inch after rupture	inch..	0.2600
Elongation per inch under strain at elastic limit	do.	.001450
Reduction in diameter at point of rupture	do.	.134
Reduction in area after rupture, per centum of original section		46.2
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections	".37*, ".15	

No. 1700.

Marks, $\frac{32}{M} T_{22}$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000550	.000200	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001200	.000200	0.	.....	
9,000	45,000	.001300	.000100	0.	.....	
10,000	50,000	.001450	.000150	0.	.....	
10,200	51,000	.001500	.000050	.....	.....	
10,400	52,000	.001550	.000050	.....	.....	
10,600	53,000	.001600	.000050	.....	.....	Elastic limit.
10,800	54,000	.002450	.000850	.....	.....	
11,000	55,000	.004850	.002400	.002850	.002850	
11,200	56,000	.006200	.001350	.....	.....	
11,400	57,000	.007050	.000850	.....	.....	
11,600	58,000	.007900	.000850	.....	.....	
11,800	59,000	.008950	.001050	.....	.....	
12,000	60,000	.010150	.001200	.....	.....	
12,400	62,000	.012450	.002300	.....	.....	
12,800	64,000	.014600	.002150	.....	.....	
13,200	66,000	.017250	.002650	.....	.....	
13,600	68,000	.019600	.002350	.....	.....	
14,000	70,000	.022250	.002650	.....	.....	
14,400	72,000	.025050	.002800	.....	.....	
14,800	74,000	.027400	.002350	.....	.....	
15,200	76,000	.030600	.003200	.....	.....	
15,600	78,000	.035000	.004400	.....	.....	
16,000	80,000	.039650	.004650	.....	.....	
16,400	82,000	.045950	.006300	.....	.....	
16,800	84,000	.051750	.005800	.....	.....	
17,200	86,000	.061400	.009650	.....	.....	
17,600	88,000	.077000	.015600	.....	.....	
17,990	89,950	.1300	.0530	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	89,950
Elastic limit per square inch of original section.....	do.....	53,000
Elongation per inch after rupture.....	inch..	0.2400
Elongation per inch under strain at elastic limit.....	do.....	.001600
Reduction in diameter at point of rupture.....	do.....	.124
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".35*, ".13	

[Additional specimens.]

No. 2506.

Marks, ³²T₂₂
B T₄

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0	-----	
2,000	10,000	.000250	.000100	0.	-----	
3,000	15,000	.000400	.000150	0.	-----	
4,000	20,000	.000500	.000100	0.	-----	
5,000	25,000	.000650	.000150	0.	-----	
6,000	30,000	.000850	.000200	0.	-----	
7,000	35,000	.001050	.000200	0.	-----	
8,000	40,000	.001200	.000150	0.	-----	
8,200	41,000	.001300	.000100	-----	-----	Elastic limit.
8,400	42,000	.001750	.000450	-----	-----	
8,600	43,000	.007750	.006000	-----	-----	
8,800	44,000	.010300	.002550	-----	-----	
9,000	45,000	.012600	.002300	-----	-----	
9,200	46,000	.013550	.000950	-----	-----	
9,400	47,000	.014550	.001000	-----	-----	
9,600	48,000	.015750	.001200	-----	-----	
9,800	49,000	.017100	.001350	-----	-----	
10,000	50,000	.018500	.001400	-----	-----	
10,400	52,000	.020750	.002250	-----	-----	
10,800	54,000	.024000	.003250	-----	-----	
11,200	56,000	.027000	.003000	-----	-----	
11,600	58,000	.030600	.003600	-----	-----	
12,000	60,000	.035000	.004400	-----	-----	
12,400	62,000	.039750	.004750	-----	-----	
12,800	64,000	.045850	.006100	-----	-----	
13,200	66,000	.052400	.006550	-----	-----	
13,600	68,000	.060500	.008100	-----	-----	
14,000	70,000	.0800	.0195	-----	-----	
14,400	72,000	.0900	.0100	-----	-----	
14,800	74,000	.1100	.0200	-----	-----	
15,100	75,500	.1650	.0550	-----	-----	Tensile strength

General summary.

Tensile strength per square inch of original section	pounds..	75,500
Elastic limit per square inch of original section	do ..	41,000
Elongation per inch after rupture	inch..	0.2750
Elongation per inch under strain at elastic limit	do....	.001300
Reduction in diameter at point of rupture	do....	.155
Reduction in area after rupture, per centum of original section		51.9
Position of rupture	".90 from neck	
Character of broken surface	silky	
Elongation of inch sections	".38", ".17	

No. 2507.

Marks, $\frac{32}{B} T_{22}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	.....	.....	
8,000	40,000	.001200	.000150	.....	.....	
8,200	41,000	.001250	.000050			Elastic limit.
8,400	42,000	.001300	.000050	.....	.....	
8,600	43,000	.005000	.003700	.....	.....	
8,800	44,000	.014000	.009000	.....	.....	
9,000	45,000	.015000	.001000	.....	.....	
9,200	46,000	.015550	.000550	.....	.....	
9,400	47,000	.016300	.000750	.....	.....	
9,600	48,000	.017550	.001250	.....	.....	
9,800	49,000	.018850	.001000	.....	.....	
10,000	50,000	.020000	.001450			Tensile strength.
10,400	52,000	.022500	.002500	.....	.....	
10,800	54,000	.025250	.002750	.....	.....	
11,200	56,000	.028500	.003250	.....	.....	
11,600	58,000	.032150	.003650	.....	.....	
12,000	60,000	.035750	.003600	.....	.....	
12,400	62,000	.040600	.004850	.....	.....	
12,800	64,000	.045000	.004400	.....	.....	
13,200	66,000	.052500	.007500	.....	.....	
13,600	68,000	.0600	.0075	.....	.....	
14,000	70,000	.0650	.0050	.....	.....	
14,400	72,000	.0850	.0200	.....	.....	
14,800	74,000	.1000	.0150	.....	.....	
15,200	76,000	.1150	.0150	.....	.....	
15,480	77,400	.1800	.0650	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	77,400
Elastic limit per square inch of original section	do....	42,000
Elongation per inch after rupture	inch..	0.2400
Elongation per inch under strain at elastic limit	do....	.001300
Reduction in diameter at point of rupture	do....	.095
Reduction in area after rupture, per centum of original section		34.0
Position of rupture		1".05 from neck
Character of broken surface	granular, 60 per centum; dull flaky, 40 per centum	
Elongation of inch sections		".30*, ".18

No. 653.

Marks, ³²T₂₂
B T₆

Length, 4.0003.

Diameter, .702.

Sectional area, .387 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
387	1,000	0.	0.	0.	0.	Initial load.
1,935	5,000	.000100	.000100	0.	-----	
3,870	10,000	.000167	.000067	0.	-----	
5,805	15,000	.000300	.000133	0.	-----	
7,740	20,000	.000433	.000133	0.	-----	
9,675	25,000	.000600	.000167	0.	-----	
11,610	30,000	.000833	.000233	0.	-----	
13,545	35,000	.001000	.000167	0.	-----	
15,480	40,000	.001267	.000267	.000067	.000067	
15,867	41,000	.001267	0.	-----	-----	
16,254	42,000	.001300	.000033	-----	-----	
16,641	43,000	.001333	.000033	-----	-----	Elastic limit.
17,028	44,000	.002233	.000900	-----	-----	
17,415	45,000	.003000	.000767	-----	-----	
17,802	46,000	.003833	.000833	-----	-----	
18,189	47,000	.008433	.004600	-----	-----	
18,576	48,000	.009433	.001000	-----	-----	Ultimate strength.
29,420	76,020	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section pounds.. 43,000
 Compression per inch under stress at elastic limit inch.. 0.001333
 Ultimate strength per square inch of original section..... pounds.. 76,021
 Manner of failure.....triple flexure

No. 2508.

Marks, $^{32}T_{22}$
 $M T_3$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
8,200	41,000	.001250	.004050	.....	.....	
8,400	42,000	.001250	0.	.....	.....	
8,600	43,000	.001300	.000050	.....	.....	
8,800	44,000	.001350	.000050	.....	.....	
9,000	45,000	.001400	.000050	.....	.....	
9,200	46,000	.001400	0.	.....	.....	
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001500	.000050	.....	.....	
9,800	49,000	.001550	.000050	.....	.....	
10,000	50,000	.001550	0.	.....	.....	
10,200	51,000	.001600	.000050			Elastic limit.
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.003600	.001950	.....	.....	
10,800	54,000	.004500	.000900	.....	.....	
11,000	55,000	.006000	.001500	.....	.....	
11,200	56,000	.009850	.003850	.....	.....	
11,400	57,000	.010750	.000900	.....	.....	
11,600	58,000	.011800	.001050	.....	.....	
11,800	59,000	.012800	.001000	.....	.....	
12,000	60,000	.014000	.001200	.....	.....	
12,400	62,000	.017500	.003500	.....	.....	
12,800	64,000	.020250	.002750	.....	.....	
13,200	66,000	.023000	.002750	.....	.....	
13,600	68,000	.025600	.002600	.....	.....	
14,000	70,000	.029250	.003650	.....	.....	
14,400	72,000	.033500	.004250	.....	.....	
14,800	74,060	.038000	.004500	.....	.....	
15,200	76,000	.043500	.005500			Tensile strength.
15,600	78,000	.050000	.0065	.....	.....	
16,000	80,000	.0550	.0050	.....	.....	
16,400	82,000	.0700	.0150	.....	.....	
16,800	84,000	.0900	.0200	.....	.....	
17,010	85,050	.1450	.0550	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	85,050
Elastic limit per square inch of original section.....	do.....	52,000
Elongation per inch after rupture.....	inch..	0.2500
Elongation per inch under strain at elastic limit.....	do.....	.001650
Reduction in diameter at point of rupture.....	do.....	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections	".15, ".35*	

No. 2509.

Marks, $^{32}T_{12}$
 $M T_4$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000800	.000100	0.	.....	
7,000	35,000	.000950	.000150	0.	.....	
8,000	40,000	.001150	.000200	0.	.....	
9,000	45,000	.001350	.000200	.....	.....	
10,000	50,000	.001550	.000200	.....	.....	
10,200	51,000	.001550	0.	.....	.....	
10,400	52,000	.001600	.000050	.....	.....	Elastic limit.
10,600	53,000	.001700	.000100	.....	.....	
10,800	54,000	.002950	.001250	.....	.....	
11,000	55,000	.004250	.001300	.....	.....	
11,200	56,000	.007750	.003500	.....	.....	
11,400	57,000	.008550	.000800	.....	.....	
11,600	58,000	.009600	.001050	.....	.....	
11,800	59,000	.010650	.001050	.....	.....	
12,000	60,000	.012000	.001350	.....	.....	
12,400	62,000	.014150	.002150	.....	.....	
12,800	64,000	.016550	.002400	.....	.....	
13,200	66,000	.019250	.002700	.....	.....	
13,600	68,000	.022000	.002750	.....	.....	
14,000	70,000	.024750	.002750	.....	.....	
14,400	72,000	.028300	.003550	.....	.....	
14,800	74,000	.032050	.003750	.....	.....	
15,200	76,000	.036050	.004000	.....	.....	
15,600	78,000	.042000	.005950	.....	.....	
16,000	80,000	.048250	.006250	.....	.....	
16,400	82,000	.0550	.006750	.....	.....	
16,800	84,000	.0650	.0100	.....	.....	
17,200	86,000	.0900	.0250	.....	.....	
17,490	87,450	.1400	.0500	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	87,450
Elastic limit per square inch of original section.....	do....	53,000
Elongation per inch after rupture.....	inch..	0.2700
Elongation per inch under strain at elastic limit.....	do....	.001700
Reduction in diameter at point of rupture.....	do....	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....	1".25 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".30*, ".24*	

H. Ex. 31—11

No. 1701.

Marks, $\frac{32}{B} \frac{T_{23}}{T_1}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000850	.000100	0.	.....	
7,000	35,000	.001050	.000200	0.	.....	
8,000	40,000	.001250	.000200	0.	.....	
9,000	45,000	.001400	.000150	0.	.....	
10,000	50,000	.001600	.000200	0.		Elastic limit.
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001750	.000100	.....	.....	
10,600	53,000	.001850	.000100	.....	.....	
10,800	54,000	.002400	.000550	.....	.....	
11,000	55,000	.003000	.000600	.001150	.001150	
11,200	56,000	.004100	.001100	.....	.....	
11,400	57,000	.005100	.001000	.....	.....	
11,600	58,000	.006400	.001300	.....	.....	
11,800	59,000	.007400	.001000	.....	.....	
12,000	60,000	.008700	.001300	.006450	.005300	
12,400	62,000	.009850	.001150	.....	.....	
12,800	64,000	.011800	.001950	.....	.....	
13,200	66,000	.014100	.002300	.....	.....	
13,600	68,000	.016000	.001900	.....	.....	
14,000	70,000	.018100	.002100	.....	.....	
14,400	72,000	.021250	.003150	.....	.....	
14,800	74,000	.023500	.002250	.....	.....	
15,200	76,000	.025600	.002150	.....	.....	
15,600	78,000	.028550	.002950	.....	.....	
16,000	80,000	.032100	.003550			Tensile strength.
16,400	82,000	.035600	.003500	.....	.....	
16,800	84,000	.040000	.004400	.....	.....	
17,200	86,000	.045500	.005500	.....	.....	
17,600	88,000	.051550	.006050	.....	.....	
18,000	90,000	.062500	.010950	.....	.....	
18,400	92,000	.073750	.011250	.....	.....	
18,800	94,000	.1150	.041250	.....	.....	
18,810	94,050	.1350	.0200	.....	.....	

General summary.

Specific gravity.....	7.8591
Tensile strength per square inch of original section.....	pounds.. 94,050
Elastic limit per square inch of original section.....	do.... 53,000
Elongation per inch after rupture.....	inch.. 0.2300
Elongation per inch under strain at elastic limit.....	do.... .001850
Reduction in diameter at point of rupture.....	do.... .115
Reduction in area after rupture, per centum of original section.....	40.3
Position of rupture.....	".45 from middle of stem
Character of broken surface.....	granular; dull center
Elongation of inch sections.....	".30*, ".16

No. 1702.

Marks, ³²T₂₃
B T₂

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000450	.000250	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000950	.000250	0.	.....	
7,000	35,000	.001050	.000100	0.	.....	
8,000	40,000	.001150	.000100	0.	.....	
9,000	45,000	.001300	.000150	0.	.....	
10,000	50,000	.001450	.000150	0.	.....	
10,200	51,000	.001500	.000050	.....	.....	Elastic limit.
10,400	52,000	.001600	.000100	.....	.....	
10,600	53,000	.001800	.000200	.....	.....	
10,800	54,000	.002000	.000200	.....	.....	
11,000	55,000	.002500	.000500	.000700	.000700	
11,200	56,000	.002950	.000450	.....	.....	
11,400	57,000	.003700	.000750	.....	.....	
11,600	58,000	.004900	.001200	.....	.....	
11,800	59,000	.006100	.001200	.....	.....	
12,000	60,000	.007250	.001150	.005050	.004350	
12,400	62,000	.009000	.001750	.....	.....	
12,800	64,000	.011300	.002300	.....	.....	
13,200	66,000	.013300	.002000	.....	.....	
13,600	68,000	.015500	.002200	.....	.....	
14,000	70,000	.018000	.002500	.....	.....	
14,400	72,000	.020400	.002400	.....	.....	
14,800	74,000	.023050	.002650	.....	.....	
15,200	76,000	.026050	.003000	.....	.....	
15,600	78,000	.028600	.002550	.....	.....	
16,000	80,000	.03250	.003900	.....	.....	
16,400	82,000	.036500	.004000	.....	.....	
16,800	84,000	.042000	.005500	.....	.....	
17,200	86,000	.047300	.005300	.....	.....	
17,600	88,000	.055600	.008300	.....	.....	
18,000	90,000	.065000	.009400	.....	.....	
18,400	92,000	.084250	.019250	.....	.....	
18,600	93,000	.1450	.060750	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	93,000
Elastic limit per square inch of original section	do....	52,000
Elongation per inch after rupture	inch..	0.2400
Elongation per inch under strain at elastic limit	do....	.001600
Reduction in diameter at point of rupture	do....	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture	inch from neck	
Character of broken surface	granular; dull center	
Elongation of inch sections	".32*, ".17	

No. 579

Marks, $\frac{32}{B} T_{23}$

Length, 3".995.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	Initial load.
500	1,000	0.	0.	0.	0.	
2,500	5,000	.000150	.000150	0.		
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000450	.000150	0.	.....	
10,000	20,000	.000600	.000150	0.	.....	
12,500	25,000	.000800	.000200	0.	.....	
15,000	30,000	.001000	.000200	0.	.....	
17,500	35,000	.001150	.000150	0.	.....	
20,000	40,000	.001350	.000200	0.	.....	
20,500	41,000	.001400	.000050	.....	.....	
21,000	42,000	.001400	0.	.....	.....	
21,500	43,000	.001450	.000050	.....	.....	
22,000	44,000	.001500	.000050	.....	.....	
22,500	45,000	.001550	.000050	.000050	.000050	
27,000	54,000	.006050	.004500	.004100	.004050	
27,500	55,000	.007250	.001200	.....	.....	
28,000	56,000	.008550	.001300	.....	.....	
28,500	57,000	.010450	.001900	.....	.....	
29,000	58,000	.012800	.002350	.....	.....	
29,500	59,000	.014500	.001700	.....	.....	
30,000	60,000	.016750	.002250	.014450	.010350	Ultimate strength.
48,100	96,200	.....	.....	.....	.....	

Manner of failure triple flexure.

No. 1703.

Marks, $^{32}T_{23}$
 $M T_1$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000650	.000100	0.	.....	
6,000	30,000	.000800	.000150	0.	.....	
7,000	35,000	.000950	.000150	0.	.....	
8,000	40,000	.001150	.000200	0.	.....	
9,000	45,000	.001300	.000150	0.	.....	
10,000	50,000	.001500	.000200	0.	.....	
10,200	51,000	.001550	.000050	.....	.....	
10,400	52,000	.001600	.000050	.....	.....	
10,600	53,000	.001600	0.	.....	.....	
10,800	54,000	.001650	.000050	.....	.....	
11,000	55,000	.001650	0.	0.	.....	
11,200	56,000	.001700	.000050	.....	.....	Elastic limit.
11,400	57,000	.002000	.000300	.....	.....	
11,600	58,000	.002500	.000500	.....	.....	
11,800	59,000	.003350	.000850	.....	.....	
12,000	60,000	.004950	.001600	.002800	.002800	
12,400	62,000	.007250	.002300	.....	.....	
12,800	64,000	.009200	.001950	.....	.....	
13,200	66,000	.011500	.002300	.....	.....	
13,600	68,000	.013700	.002200	.....	.....	
14,000	70,000	.015750	.002050	.....	.....	
14,400	72,000	.018250	.002500	.....	.....	
14,800	74,000	.020900	.002650	.....	.....	
15,200	76,000	.023600	.002700	.....	.....	
15,600	78,000	.026550	.002950	.....	.....	
16,000	80,000	.029800	.003250	.....	.....	
16,400	82,000	.033500	.003700	.....	.....	
16,800	84,000	.038250	.004750	.....	.....	
17,200	86,000	.043250	.005000	.....	.....	
17,600	88,000	.050600	.007350	.....	.....	
18,000	90,000	.059500	.008900	.....	.....	
18,400	92,000	.075000	.015500	.....	.....	
18,670	93,350	.1100	.0350	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	93,350
Elastic limit per square inch of original section	do	56,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do.....	.001700
Reduction in diameter at point of rupture.....	do.....	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....	§ inch from neck	
Character of broken surface	granular; dull center	
Elongation of inch sections	".30*, ".10	

No. 1705.

Marks, $\frac{32}{M} T_{23}$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001100	.000200	0.	.....	
8,000	40,000	.001300	.000200	0.	.....	
9,000	45,000	.001400	.000100	0.	.....	
10,000	50,000	.001550	.000150	0.	.....	
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001650	0.	.....	.....	
10,800	54,000	.001700	.000050	.....	.....	
11,000	55,000	.001750	.000050	0.	.....	
11,200	56,000	.001800	.000050	.....	.....	
11,400	57,000	.001850	.000050	.....	.....	Elastic limit.
11,600	58,000	.002050	.000200	.....	.....	
11,800	59,000	.002300	.000250	.....	.....	
12,000	60,000	.003050	.000750	.001100	.001100	Rested under initial load 1 hour.
12,400	62,000	.004750	.001700	.....	.....	
12,800	64,000	.007500	.002750	.....	.....	
13,200	66,000	.010300	.002800	.....	.....	
13,600	68,000	.012550	.002250	.....	.....	
14,000	70,000	.014900	.002350	.....	.....	
14,400	72,000	.017100	.002200	.....	.....	
14,800	74,000	.020000	.002900	.....	.....	
15,200	76,000	.022300	.002300	.....	.....	
15,600	78,000	.025000	.002700	.....	.....	
16,000	80,000	.028400	.003400	.....	.....	
16,400	82,000	.032250	.003850	.....	.....	
16,800	84,000	.036000	.003750	.....	.....	
17,200	86,000	.041250	.005250	.....	.....	
17,600	88,000	.046800	.005550	.....	.....	
18,000	90,000	.056200	.009400	.....	.....	
18,400	92,000	.0700	.0138	.....	.....	
18,780	93,900	.1200	.0500	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	93,900
Elastic limit per square inch of original section	do....	57,000
Elongation per inch after rupture	inch..	0.2100
Elongation per inch under strain at elastic limit	do....	.001850
Reduction in diameter at point of rupture	do....	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	at middle of stem	
Character of broken surface	granular; dull center	
Elongation of inch sections	" 23", ".19	

No. 2047.

Marks, $\frac{32}{M} \frac{T_2}{T_1}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	{ .001250	.000150	0.	.....	Elastic limit.
		{ .007450	.006200	.....	.....	
8,200	41,000	.008650	.001200	.....	.....	
8,400	42,000	.009800	.001150	.....	.....	
8,600	43,000	.010400	.000600	.....	.....	
8,800	44,000	.011350	.000950	.....	.....	
9,000	45,000	.012150	.000800	.010400	.010400	
9,200	46,000	.013250	.001100	.....	.....	
9,400	47,000	.014900	.001650	.....	.....	
9,600	48,000	.016500	.001600	.....	.....	
9,800	49,000	.017050	.000550	.....	.....	
10,000	50,000	.017750	.000700	.....	.....	
10,200	51,000	.018550	.000800	.....	.....	
10,400	52,000	.019700	.001150	.....	.....	
10,600	53,000	.020850	.001150	.....	.....	
10,800	54,000	.022450	.001600	.....	.....	
11,000	55,000	.023950	.001500	.....	.....	
11,200	56,000	.025000	.001050	.....	.....	
11,400	57,000	.026800	.001800	.....	.....	
11,600	58,000	.028500	.001700	.....	.....	
11,800	59,000	.030050	.001550	.....	.....	
12,000	60,000	.031900	.001850	.....	.....	
12,400	62,000	.035750	.003850	.....	.....	
12,800	64,000	.041000	.005250	.....	.....	
13,200	66,000	.046000	.005000	.....	.....	
13,600	68,000	.052600	.006600	.....	.....	
14,000	70,000	.059550	.006950	.....	.....	
14,400	72,000	.070000	.010450	.....	.....	
14,800	74,000	.0900	.0200	.....	.....	
15,200	76,000	.1100	.0200	.....	.....	
15,460	77,300	.1600	.0500	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	77,300
Elastic limit per square inch of original section	do....	40,000
Elongation per inch after rupture	inch..	0.2600
Elongation per inch under strain at elastic limit	do....	.001250
Reduction in diameter at point of rupture	do....	.135
Reduction in area after rupture, per centum of original section		46.2
Position of rupture	".05 from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".24, ".28*	

No. 2048.

Marks, $\frac{32}{B} T_{24}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	— .000050	— .000050	
2,000	10,000	.000150	.000100	— .000050	0.	
3,000	15,000	.000250	.000100	— .000050	0.	
4,000	20,000	.000350	.000100	— .000050	0.	
5,000	25,000	.000500	.000150	— .000050	0.	
6,000	30,000	.000650	.000150	— .000050	0.	
7,000	35,000	.000900	.000250	— .000050	0.	
7,200	36,000	.000900	0.	.....	.....	
7,400	37,000	.000950	.000050	.....	.....	
7,600	38,000	.000950	0.			Elastic limit.
7,800	39,000	.001000	.000050	.....	.....	
8,000	40,000	.008800	.007800	.007250	.007300	
8,200	41,000	.009200	.000400	.....	.....	
8,400	42,000	.009900	.000700	.....	.....	
8,600	43,000	.010750	.000850	.....	.....	
8,800	44,000	.011600	.000850	.....	.....	
9,000	45,000	.012500	.000900	.....	.....	
9,200	46,000	.013550	.001050	.....	.....	
9,400	47,000	.014650	.001100	.....	.....	
9,600	48,000	.015750	.001100			Tensile strength.
9,800	49,000	.016850	.001100	.....	.....	
10,000	50,000	.018150	.001300	.....	.....	
10,400	52,000	.020400	.002250	.....	.....	
10,800	54,000	.022900	.002500	.....	.....	
11,200	56,000	.026200	.003300	.....	.....	
11,600	58,000	.028900	.002700	.....	.....	
12,000	60,000	.032400	.003500	.....	.....	
12,400	62,000	.036050	.003650	.....	.....	
12,800	64,000	.040750	.004700	.....	.....	
13,200	66,000	.047250	.006500	.....	.....	
13,600	68,000	.053250	.006000	.....	.....	
14,000	70,000	.059500	.006250	.....	.....	
14,400	72,000	.068400	.008900	.....	.....	
14,800	74,000	.081000	.012600	.....	.....	
15,200	76,000	.1000	.0190	.....	.....	
15,600	78,000	.1400	.0400	.....	.....	
15,660	78,300	.1800	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	78,300
Elastic limit per square inch of original section	do....	39,000
Elongation per inch after rupture	inch..	0.2650
Elongation per inch under strain at elastic limit	do....	.001000
Reduction in diameter at point of rupture	do....	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface	granular, 40 per centum; dull silky, 60 per centum	
Elongation of inch sections	".34*, ".21	

No. 583.

Marks, $32 T_{24}$
B T₃

Length, 4".

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000500	.000100	0.	.....	
12,500	25,000	.000650	.000150	0.	.....	
15,000	30,000	.000850	.000200	0.	.....	
17,500	35,000	.001050	.000200	0.	.....	
18,000	36,000	.001050	0.	.....	.....	
18,500	37,000	.001100	.000050	.....	.....	
19,000	38,000	.001150	.000050	.....	.....	
19,500	39,000	.001200	.000050	.....	.....	
20,000	40,000	.001300	.000100	0.		Elastic limit.
20,500	41,000	.001500	.000200	.....	.....	
21,000	42,000	.002250	.000750	.....	.....	
21,500	43,000	.006250	.004000	.....	.....	
22,000	44,000	.008000	.001750	.....	.....	
22,500	45,000	.008500	.000500	.007000	.007000	
23,000	46,000	.009150	.000650	.....	.....	
23,500	47,000	.009850	.000700	.....	.....	
24,000	48,000	.010500	.000650	.....	.....	
24,500	49,000	.011350	.000850	.....	.....	
25,000	50,000	.012250	.000900	.010350	.003350	Ultimate strength.
43,800	87,600	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 40,000
 Compression per inch under stress at elastic limit inch.. 0.001300
 Ultimate strength per square inch of original section pounds.. 87,600
 Manner of failure triple flexure

No. 2049.

Marks, ³²T₂₄M T₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001050	.000100	0.	.....	
7,200	36,000	.001050	0.	.....	.....	
7,400	37,000	.001100	.000050	.....	.....	
7,600	38,000	.001150	.000050	.....	.....	
7,800	39,000	.001200	.000050	.....	.....	
8,000	40,000	.001250	.000050	0.	.....	
8,200	41,000	.001250	0.	.....	.....	
8,400	42,000	.001350	.000100	.....	.....	
8,600	43,000	.001400	.000050	.....	.....	
8,800	44,000	.001400	0.	.....	.....	
9,000	45,000	.001450	.000050	0.	.....	
9,200	46,000	.001450	0.	.....	.....	
9,400	47,000	.001500	.000050			Elastic limit.
9,600	48,000	.001550	.000050	.....	.....	
9,800	49,000	.002700	.001150	.....	.....	
10,000	50,000	.004200	.001500	.002450	.002450	
10,200	51,000	.005900	.001700	.....	.....	
10,400	52,000	.007400	.001500	.....	.....	
10,600	53,000	.008100	.000700	.....	.....	
10,800	54,000	.009200	.001100	.....	.....	
11,000	55,000	.010100	.000900	.....	.....	
11,200	56,000	.011250	.001150	.....	.....	
11,400	57,000	.012700	.001450			Tensile strength.
11,600	58,000	.013600	.000900	.....	.....	
11,800	59,000	.014600	.001000	.....	.....	
12,000	60,000	.015700	.001100	.....	.....	
12,400	62,000	.018000	.002300	.....	.....	
12,800	64,000	.020400	.002400	.....	.....	
13,200	66,000	.023500	.003100	.....	.....	
13,600	68,000	.026200	.002700	.....	.....	
14,000	70,000	.030100	.003900	.....	.....	
14,400	72,000	.034050	.003950	.....	.....	
14,800	74,000	.038500	.004450			Tensile strength.
15,200	76,000	.044000	.005500	.....	.....	
15,600	78,000	.049750	.005750	.....	.....	
16,000	80,000	.058500	.008750	.....	.....	
16,400	82,000	.069250	.010750	.....	.....	
16,800	84,000	.0900	.020750	.....	.....	
17,170	85,850	.1500	.0600	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	85,850
Elastic limit per square inch of original section.....	do....	48,000
Elongation per inch after rupture.....	inch..	0.2400
Elongation per inch under strain at elastic limit.....	do....	.001550
Reduction in diameter at point of rupture.....	do....	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....	"4 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".36*, ".12	

No. 2050.

Marks, $\frac{32}{M} T_{24}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001300	.000100	0.	.....	
8,200	41,000	.001350	.000050	.....	.....	
8,400	42,000	.001350	0.	.....	.....	
8,600	43,000	.001400	.000050	.....	.....	
8,800	44,000	.001450	.000050	.....	.....	
9,000	45,000	.001500	.000050	.0	.....	
9,200	46,000	.001500	0.	.....	.....	
9,400	47,000	.001550	.000050	.....	.....	
9,600	48,000	.001550	0.	.....	.....	
9,800	49,000	.001600	.000050	.....	.....	
10,000	50,000	.001650	.000050	.000050	.000050	
10,200	51,000	.001650	0.	.....	.....	
10,400	52,000	.001700	.000050			Elastic limit.
10,600	53,000	.001850	.000150	.....	.....	
10,800	54,000	.002700	.000850	.....	.....	
11,000	55,000	.004500	.001800	.002650	.002600	
11,200	56,000	.005650	.001150	.....	.....	
11,400	57,000	.006500	.000850	.....	.....	
11,600	58,000	.007550	.001050	.....	.....	
11,800	59,000	.008600	.001050	.....	.....	
12,000	60,000	.009700	.001100	.....	.....	
12,400	62,000	.011850	.002150	.....	.....	
12,800	64,000	.013800	.001950	.....	.....	
13,200	66,000	.016100	.002300	.....	.....	
13,600	68,000	.018550	.002450	.....	.....	
14,000	70,000	.021000	.002450	.....	.....	
14,400	72,000	.023850	.002850	.....	.....	
14,800	74,000	.026850	.003000	.....	.....	
15,200	76,000	.030150	.003300	.....	.....	
15,600	78,000	.034000	.003850	.....	.....	
16,000	80,000	.038350	.004350	.....	.....	
16,400	82,000	.044000	.005650	.....	.....	
16,800	84,000	.050000	.006000	.....	.....	
17,200	86,000	.059000	.009000	.....	.....	
17,600	88,000	.0750	.0160	.....	.....	
18,000	90,000	.0950	.0200	.....	.....	
18,060	90,300	.1350	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	90,300
Elastic limit per square inch of original section	do	53,000
Elongation per inch after rupture.....	inch..	0.2300
Elongation per inch under strain at elastic limit.....	do	.001850
Reduction in diameter at point of rupture.....	do	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture.....	$\frac{1}{4}$ inch from neck	
Character of broken surface.....	granular, 60 per centum ; silky, 40 per centum	
Elongation of inch sections.....	".31*, ".15	

[Additional specimens.]

No. 2403.

Marks, $\frac{32}{B} \frac{T_{24}}{T_4}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000400	.000100	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001100	.000100	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
8,200	41,000	.001300	.000050			Elastic limit
8,400	42,000	.001400	.000100	.....	.....	
8,600	43,000	.001750	.000350	.....	.....	
8,800	44,000	.005100	.003350	.....	.....	
9,000	45,000	.007850	.002750	.....	.....	
9,200	46,000	.008650	.000800	.....	.....	
9,400	47,000	.010600	.001950	.....	.....	
9,600	48,000	.011750	.001150	.....	.....	
9,800	49,000	.013500	.001750	.....	.....	
10,000	50,000	.015350	.001850	.....	.....	
10,400	52,000	.017000	.001650	.....	.....	
10,800	54,000	.019600	.002600	.....	.....	
11,200	56,000	.022000	.002400	.....	.....	
11,600	58,000	.026100	.004100	.....	.....	
12,000	60,000	.030000	.003900	.....	.....	
12,400	62,000	.034500	.004500	.....	.....	
12,800	64,000	.039050	.004550	.....	.....	
13,200	66,000	.045000	.005950	.....	.....	
13,600	68,000	.051750	.006750	.....	.....	
14,000	70,000	.0600	.008250	.....	.....	
14,400	72,000	.0750	.0150	.....	.....	
14,800	74,000	.0900	.0150			Tensile strength.
15,060	75,300	.1200	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	75,300
Elastic limit per square inch of original section	do	42,000
Elongation per inch after rupture	inch..	0.2200
Elongation per inch under strain at elastic limit	do	.001400
Reduction in diameter at point of rupture	do	.145
Reduction in area after rupture, per centum of original section		49.1
Position of rupture	".55 from neck	
Character of broken surface	silky	
Elongation of inch sections	".35*, ".09	

No. 2404.

Marks, $\frac{32}{B} \frac{T_{24}}{T_6}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000700	.000100	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001150	.000150	0.	.....	
9,000	45,000	.001350	.000200	.....	.....	
9,200	46,000	.001400	.000050			Elastic limit.
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001500	.000050	.....	.....	
9,800	49,000	.004100	.002600	.....	.....	
10,000	50,000	.007100	.003000	.....	.....	
10,400	52,000	.008750	.001650	.....	.....	
10,800	54,000	.011500	.002750	.....	.....	
11,200	56,000	.013750	.002250	.....	.....	
11,600	58,000	.016000	.002250	.....	.....	
12,000	60,000	.019000	.003000	.....	.....	
12,400	62,000	.022000	.003000			Tensile strength.
12,800	64,000	.024550	.002550	.....	.....	
13,200	66,000	.028000	.003450	.....	.....	
13,600	68,000	.032000	.004000	.....	.....	
14,000	70,000	.036250	.004250	.....	.....	
14,400	72,000	.042000	.005750	.....	.....	
14,800	74,000	.047500	.005500	.....	.....	
15,200	76,000	.055500	.008000	.....	.....	
15,600	78,000	.0600	.0045	.....	.....	
16,000	80,000	.0850	.0250	.....	.....	
16,300	81,500	.1500	.0650	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	81,500
Elastic limit per square inch of original section.....	do....	48,000
Elongation per inch after rupture.....	inch..	0.2450
Elongation per inch under strain at elastic limit.....	do....	.001500
Reduction in diameter at point of rupture.....	do....	.145
Reduction in area after rupture, per centum of original section.....		49.1
Position of rupture.....	".90 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".34*, ".15	

No. 648.

Marks, $\frac{32}{B} \frac{T_{24}}{T_6}$

Length, 4'' .004.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000750	.000200	0.	.....	
15,000	30,000	.000950	.000200	0.	.....	
17,500	35,000	.001250	.000300	.000050	.000050	
18,000	36,000	.001300	.000050	.....	.....	
18,500	37,000	.001350	.000050	.....	.....	
19,000	38,000	.001400	.000050			Elastic limit.
19,500	39,000	.001600	.000200	.....	.....	
20,000	40,000	.001900	.000300	.....	.....	
20,500	41,000	.011750	.009850	.....	.....	
21,000	42,000	.010500	.001250	.....	.....	
21,500	43,000	.010250	.000250	.....	.....	
22,000	44,000	.010400	.000150			Ultimate strength.
40,650	81,300	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 38,00
 Compression per inch under stress at elastic limitinch.. 0.00140
 Ultimate strength per square inch of original sectionpounds.. 81,30
 Manner of failuretriple flexure

No. 2405

Marks, ³²T₂₄
M T₃

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000550	.000200	0.	.....	
5,000	25,000	.000650	.000100	0.	.....	
6,000	30,000	.000800	.000150	0.	.....	
7,000	35,000	.000950	.000150	0.	.....	
8,000	40,000	.001100	.000150	.....	.....	
9,000	45,000	.001300	.000200	.....	.....	
9,200	46,000	.001350	.000050	.....	.....	
9,400	47,000	.001400	.000050	.....	.....	Elastic limit.
9,600	48,000	.003500	.002100	.....	.....	
9,800	49,000	.004050	.000550	.....	.....	
10,000	50,000	.005000	.000950	.....	.....	
10,400	52,000	.008250	.003250	.....	.....	
10,800	54,000	.010500	.002250	.....	.....	
11,200	56,000	.014000	.003500	.....	.....	
11,600	58,000	.017000	.003000	.....	.....	
12,000	60,000	.020000	.003000	.....	.....	
12,400	62,000	.023000	.003000	.....	.....	
12,800	64,000	.020100	.003100	.....	.....	
13,200	66,000	.029500	.003400	.....	.....	
13,600	68,000	.034000	.004500	.....	.....	
14,000	70,000	.039250	.005250	.....	.....	
14,400	72,000	.045750	.006500	.....	.....	
14,800	74,000	.052000	.006250	.....	.....	
15,200	76,000	.0550	.0030	.....	.....	
15,600	78,000	.0850	.0300	.....	.....	
16,120	80,600	.1400	.0550	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	80,600
Elastic limit per square inch of original section.....	do....	47,000
Elongation per inch after rupture.....	inch..	0.2050
Elongation per inch under strain at elastic limit.....	do....	.001400
Reduction in diameter at point of rupture.....	do....	.145
Reduction in area after rupture, per centum of original section.....		49.1
Position of rupture.....	".45 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".32*, ".09	

No. 2406.

Marks, $\frac{32}{M} T_{24}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000700	.000200	.000050	.000050	
5,000	25,000	.000900	.000200	.000050	0.	
6,000	30,000	.001100	.000200	.000100	.000050	
7,000	35,000	.001250	.000150	.000100	0.	
8,000	40,000	.001400	.000150	.....	.....	
9,000	45,000	.001600	.000200	.....	.....	
10,000	50,000	.001800	.000200			Elastic limit.
10,200	51,000	.001850	.000050	.....	.....	
10,400	52,000	.001850	0.	.....	.....	
10,600	53,000	.001900	.000050	.....	.....	
10,800	54,000	.002000	.000100	.....	.....	
11,000	55,000	.008000	.006000	.....	.....	
11,200	56,000	.009150	.001150	.....	.....	
11,400	57,000	.009650	.000500	.....	.....	
11,600	58,000	.010500	.000850	.....	.....	
11,800	59,000	.011750	.001250	.....	.....	
12,000	60,000	.014000	.002250	.....	.....	
12,400	62,000	.015800	.001800	.....	.....	
12,800	64,000	.018500	.002700	.....	.....	
13,200	66,000	.021100	.002600	.....	.....	
13,600	68,000	.024750	.003650	.....	.....	
14,000	70,000	.028000	.003250			Tensile strength.
14,400	72,000	.031500	.003500	.....	.....	
14,800	74,000	.037000	.005500	.....	.....	
15,200	76,000	.043050	.006050	.....	.....	
15,600	78,000	.049500	.006450	.....	.....	
16,000	80,000	.0550	.0055	.....	.....	
16,400	82,000	.0650	.0100	.....	.....	
16,800	84,000	.1000	.0350	.....	.....	
16,820	84,100	.1200	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	84,100
Elastic limit per square inch of original section.....	do....	54,000
Elongation per inch after rupture.....	inch..	.0.2350
Elongation per inch under strain at elastic limit.....	do....	.002000
Reduction in diameter at point of rupture.....	do....	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....	".85 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".35*, ".12	

[Additional specimens.]

No. 2605.

Marks, ³²T₂₄
B T₇

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000250	.000150	0.	-----	
3,000	15,000	.000400	.000150	0.	-----	
4,000	20,000	.000550	.000150	0.	-----	
5,000	25,000	.000750	.000200	0.	-----	
6,000	30,000	.000900	.000150	0.	-----	
7,000	35,000	.001050	.000150	0.	-----	
8,000	40,000	.001200	.000150	-----	-----	
9,000	45,000	.001350	.000150	-----	-----	
10,000	50,000	.001600	.000250	-----	-----	
10,200	51,000	.001650	.000050	-----	-----	
10,400	52,000	.001700	.000050	-----	-----	
10,600	53,000	.001750	.000050	-----	-----	
10,800	54,000	.001800	.000050	-----	-----	
11,000	55,000	.001850	.000050	-----	-----	Elastic limit.
11,200	56,000	.002150	.000300	-----	-----	
11,400	57,000	.003700	.001550	-----	-----	
11,600	58,000	.005600	.001900	-----	-----	
11,800	59,000	.007050	.001450	-----	-----	
12,000	60,000	.008500	.001450	-----	-----	
12,400	62,000	.010600	.002100	-----	-----	
12,800	64,000	.012850	.002250	-----	-----	
13,200	66,000	.015100	.002250	-----	-----	
13,600	68,000	.017600	.002500	-----	-----	
14,000	70,000	.020350	.002750	-----	-----	
14,400	72,000	.023000	.002650	-----	-----	
14,800	74,000	.026100	.003100	-----	-----	
15,200	76,000	.029500	.003400	-----	-----	
15,600	78,000	.033550	.004050	-----	-----	
16,000	80,000	.038000	.004450	-----	-----	
16,400	82,000	.043500	.005500	-----	-----	
16,800	84,000	.049750	.006250	-----	-----	
17,200	86,000	.0575	.007750	-----	-----	
17,600	88,000	.0700	.0125	-----	-----	
18,000	90,000	.1000	.0300	-----	-----	
18,080	90,400	.1450	.0450	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	90,400
Elastic limit per square inch of original section	do....	55,000
Elongation per inch after rupture	inch..	0.2150
Elongation per inch under strain at elastic limit	do....	.001850
Reduction in diameter at point of rupture	do....	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture	".80 from neck	
Character of broken surface	silky	
Elongation of inch sections.....	".32*, ".11	

H. Ex. 31—12

No. 2606.

Marks, $\frac{32}{B} \frac{T_{24}}{T_8}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	0.	.....	
2,000	10,000	.000150	.000100	0.	.....	
3,000	15,000	.000300	.000150	0.	.....	
4,000	20,000	.000450	.000150	0.	.....	
5,000	25,000	.000550	.000100	0.	.....	
6,000	30,000	.000750	.000200	0.	.....	
7,000	35,000	.000850	.000100	0.	.....	
8,000	40,000	.001000	.000150	0.	.....	
9,000	45,000	.001400	.000400	.....	.....	
9,200	46,000	.001450	.000050			Elastic limit.
9,400	47,000	.001550	.000100	.....	.....	
9,600	48,000	.001600	.000050	.....	.....	
9,800	49,000	.001650	.000050	.....	.....	
10,000	50,000	.001800	.000150	.....	.....	
10,200	51,000	.001950	.000150	.....	.....	
10,400	52,000	.002450	.000500	.....	.....	
10,600	53,000	.003150	.000700	.....	.....	
10,800	54,000	.004350	.001200	.....	.....	
11,000	55,000	.006500	.002150	.....	.....	
11,200	56,000	.008350	.001850			Tensile strength.
11,600	58,000	.010000	.001650	.....	.....	
12,000	60,000	.012050	.002050	.....	.....	
12,400	62,000	.014500	.002450	.....	.....	
12,800	64,000	.016500	.002000	.....	.....	
13,200	66,000	.019000	.002500	.....	.....	
13,600	68,000	.021750	.002750	.....	.....	
14,000	70,000	.024850	.003100	.....	.....	
14,400	72,000	.027550	.002700	.....	.....	
14,800	74,000	.031500	.003950	.....	.....	
15,200	76,000	.035000	.003500			Tensile strength.
15,600	78,000	.040000	.005000	.....	.....	
16,000	80,000	.045150	.005150	.....	.....	
16,400	82,000	.0525	.007350	.....	.....	
16,800	84,000	.0575	.0050	.....	.....	
17,200	86,000	.0800	.0225	.....	.....	
17,600	88,000	.1000	.0200	.....	.....	
17,650	88,250	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	88,250
Elastic limit per square inch of original section.....	do....	49,000
Elongation per inch after rupture.....	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do....	.001650
Reduction in diameter at point of rupture.....	do....	.135
Reduction in area after rupture, per centum of original section.....	.....	46.2
Position of rupture.....	".70 from neck	
Character of broken surface.....	.....	silky
Elongation of inch sections.....	.....	".83*, ".10

No. 677.

Marks, ^{32 T₂₄}
B T₉

Length, 4'' .005.

Diameter, '' .715.

Sectional area, .402 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
402	1,000	0.	0.	0.	0.	Initial load.
2,010	5,000	.000100	.000100	0.	.....	
4,020	10,000	.000233	.000133	0.	.....	
6,030	15,000	.000433	.000200	0.	.....	
8,040	20,000	.000567	.000134	0.	.....	
10,050	25,000	.000733	.000166	0.	.....	
12,060	30,000	.000933	.000200	0.	.....	
14,070	35,000	.001100	.000167	0.	.....	
16,080	40,000	.001267	.000167	0.	.....	
16,482	41,000	.001267	0.	.....	.....	
16,884	42,000	.001333	.000066	.....	.....	
17,286	43,000	.001367	.000034	.....	.....	
17,688	44,000	.001400	.000033	.....	.....	
18,090	45,000	.001467	.000067	.....	.....	
18,492	46,000	.001500	.000033	.....	.....	
18,894	47,000	.001500	0.			Elastic limit.
19,296	48,000	.002067	.000567	.....	.....	
19,698	49,000	.002400	.000333	.....	.....	
20,100	50,000	.002733	.000333	.....	.....	
20,502	51,000	.000330	.000567	.....	.....	
20,904	52,000	.003833	.000533	.....	.....	
21,306	53,000	.004700	.000867	.....	.....	
21,708	54,000	.006033	.001333	.....	.....	
22,110	55,000	.007267	.001234	.....	.....	
33,850	84,200					Ultimate strength.

General summary.

Elastic limit per square inch of original section.....pounds.. 47,000
 Compression per inch under stress at elastic limit.....inch.. 0.001500
 Ultimate strength per square inch of original section.....pounds.. 84,200
 Manner of failuretriple flexure

No. 2607.

Marks, $^{32}T_{24}$
 $M T_5$ Diameter, $\frac{1}{4}$ ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001350	.000150	.....	.....	
9,000	45,000	.001500	.000150	.....	.....	
9,200	46,000	.001550	.000050	.....	.....	Elastic limit.
9,400	47,000	.001750	.000200	.....	.....	
9,600	48,000	.002600	.000850	.....	.....	
9,800	49,000	.005500	.002900	.....	.....	
10,000	50,000	.006150	.000650	.....	.....	
10,400	52,000	.008400	.002250	.....	.....	
10,800	54,000	.010000	.001600	.....	.....	
11,200	56,000	.011800	.001800	.....	.....	
11,600	58,000	.013900	.002100	.....	.....	
12,000	60,000	.016400	.002500	.....	.....	
12,400	62,000	.018700	.002300	.....	.....	
12,800	64,000	.020600	.001900	.....	.....	
13,200	66,000	.022900	.002300	.....	.....	
13,600	68,000	.025500	.002600	.....	.....	
14,000	70,000	.028750	.003250	.....	.....	
14,400	72,000	.032300	.003550	.....	.....	
14,800	74,000	.034750	.002450	.....	.....	
15,200	76,000	.039050	.004300	.....	.....	
15,600	78,000	.044000	.004950	.....	.....	
16,000	80,000	.049500	.005500	.....	.....	
16,400	82,000	.0550	.0055	.....	.....	
16,800	84,000	.0650	.0100	.....	.....	
17,200	86,000	.0850	.0200	.....	.....	
17,600	88,000	.1050	.0200	.....	.....	
17,790	88,950	.1600	.0550	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	88,950
Elastic limit per square inch of original section.....	do.....	46,000
Elongation per inch after rupture.....	inch..	0.2400
Elongation per inch under strain at elastic limit.....	do.....	.001550
Reduction in diameter at point of rupture.....	do.....	.145
Reduction in area after rupture, per centum of original section.....		49.1
Position of rupture.....	$\frac{1}{2}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	"14, ".34"	

No. 2608.

Marks, $\frac{32}{M} \frac{T_{24}}{T_6}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001050	.000200	0.	.....	
7,000	35,000	.001150	.000100	0.	.....	
8,000	40,000	.001350	.000200	0.	.....	
9,000	45,000	.001500	.000150			Elastic limit.
9,200	46,000	.001550	.000050	.....	.....	
9,400	47,000	.001600	.000050	.....	.....	
9,600	48,000	.002200	.000600	.....	.....	
9,800	49,000	.003300	.001100	.....	.....	
10,000	50,000	.005650	.002350	.....	.....	
10,400	52,000	.007700	.002050	.....	.....	
10,800	54,000	.009450	.001750	.....	.....	
11,200	56,000	.011500	.002050	.....	.....	
11,600	58,000	.013500	.002000			Tensile strength.
12,000	60,000	.015600	.002100	.....	.....	
12,400	62,000	.017850	.002250	.....	.....	
12,800	64,000	.020250	.002400	.....	.....	
13,200	66,000	.022650	.002400	.....	.....	
13,600	68,000	.025750	.003100	.....	.....	
14,000	70,000	.028750	.003000	.....	.....	
14,400	72,000	.032250	.003500	.....	.....	
14,800	74,000	.036250	.004000	.....	.....	
15,200	76,000	.040500	.004250	.....	.....	
15,600	78,000	.046750	.006250			
16,000	80,000	.0525	.005750	.....	.....	
16,400	82,000	.0575	.0050	.....	.....	
16,800	84,000	.0625	.0050	.....	.....	
16,900	84,500	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	84,500
Elastic limit per square inch of original section.....	do....	47,000
Elongation per inch after rupture.....	inch..	0.0850
Elongation per inch under strain at elastic limit.....	do....	.001600
Reduction in diameter at point of rupture.....	do....	.035
Reduction in area after rupture, per centum of original section.....		13.2
Position of rupture.....		".10 from neck
Character of broken surface.....	granular; flaky spot at circumference	
Elongation of inch sections.....		".10*, ".07

No. 1706.

Marks, ³²T₂₅
B T₁Diameter, ¹¹.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000300	.000100	0.	.....	
4,000	20,000	.000400	.000100	0.	.....	
5,000	25,000	.000650	.000250	0.	.....	
6,000	30,000	.000850	.000200	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001150	.000150	0.	.....	
9,000	45,000	.001350	.000200	0.	.....	
9,200	46,000	.001400	.000050	.....	.....	
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001550	.000100	.....	.....	Elastic limit.
9,800	49,000	.001900	.000350	.....	.....	
10,000	50,000	.002500	.000600	.000850	.000850	
10,200	51,000	.003400	.000900	.....	.....	
10,400	52,000	.004450	.001050	.....	.....	
10,600	53,000	.005600	.001150	.....	.....	
10,800	54,000	.006450	.000850	.....	.....	
11,000	55,000	.007450	.001000	.005450	.004600	
11,200	56,000	.008500	.001050	.....	.....	
11,400	57,000	.009500	.001000	.....	.....	
11,600	58,000	.010500	.001000	.....	.....	
11,800	59,000	.012000	.001500	.....	.....	
12,000	60,000	.013000	.001000	.....	.....	
12,400	62,000	.015400	.002400	.....	.....	
12,800	64,000	.017700	.002300	.....	.....	
13,200	66,000	.020400	.002700	.....	.....	
13,600	68,000	.023500	.003100	.....	.....	
14,000	70,000	.026500	.003000	.....	.....	
14,400	72,000	.030150	.003650	.....	.....	
14,800	74,000	.033500	.003350	.....	.....	
15,200	76,000	.038300	.004800	.....	.....	
15,600	78,000	.043500	.005200	.....	.....	
16,000	80,000	.051100	.007600	.....	.....	
16,400	82,000	.061300	.010200	.....	.....	
16,800	84,000	.075250	.013950	.....	.....	
17,150	85,750	.1250	.049750	.....	.....	Tensile strength.

General summary.

Specific gravity.....	7.8606
Tensile strength per square inch of original section..... pounds..	85,750
Elastic limit per square inch of original section..... do. ..	48,000
Elongation per inch after rupture..... inch..	0.2450
Elongation per inch under strain at elastic limit..... do....	.001550
Reduction in diameter at point of rupture..... do....	.155
Reduction in area after rupture, per centum of original section.....	51.9
Position of rupture.....	$\frac{3}{8}$ inch from middle of stem
Character of broken surface.....	silky
Elongation of inch sections.....	".36", ".13

No. 1707.

Marks, ³²T₂₅
B T₂

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000300	.000100	0.	.....	
4,000	20,000	.000450	.000150	0.	.....	
5,000	25,000	.000650	.000200	0.	.....	
6,000	30,000	.000800	.000150	0.	.....	
7,000	35,000	.001000	.000200	0.	.....	
8,000	40,000	.001150	.000150	0.	.....	
9,000	45,000	.001350	.000200	.....	.....	
9,200	46,000	.001400	.000050	.....	.....	Elastic limit.
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001800	.000350	.....	.....	
9,800	49,000	.003050	.001250	.....	.....	
10,000	50,000	.004700	.001650	.002950	.002950	
10,200	51,000	.005900	.001200	.....	.....	
10,400	52,000	.006700	.000800	.....	.....	
10,600	53,000	.007950	.001250	.....	.....	
10,800	54,000	.008900	.000950	.....	.....	
11,000	55,000	.009900	.001000	.007900	.004950	
11,200	56,000	.011000	.001100	.....	.....	
11,400	57,000	.011900	.000900	.....	.....	
11,600	58,000	.012150	.001250	.....	.....	
11,800	59,000	.014450	.001300	.....	.....	
12,000	60,000	.015750	.001300	.....	.....	
12,400	62,000	.018400	.002650	.....	.....	
12,800	64,000	.020700	.002300	.....	.....	
13,200	66,000	.023900	.003200	.....	.....	
13,600	68,000	.026800	.002000	.....	.....	
14,000	70,000	.030600	.003800	.....	.....	
14,400	72,000	.034550	.003950	.....	.....	
14,800	74,000	.039250	.004700	.....	.....	
15,200	76,000	.045100	.005850	.....	.....	
15,600	78,000	.051800	.006700	.....	.....	
16,000	80,000	.062050	.010250	.....	.....	
16,400	82,000	.078250	.016200	.....	.....	
16,790	83,950	.....	.....	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	83,950
Elastic limit per square inch of original section	do....	47,000
Elongation per inch after rupture	inch..	0.2550
Elongation per inch under strain at elastic limit.....	do....	.001450
Reduction in diameter at point of rupture	do....	.155
Reduction in area after rupture, per centum of original section.....		51.9
Position of rupture.....	".45 from middle of stem	
Character of broken surface	silky	
Elongation of inch sections.....	".37*, ".14	

No. 595.

Marks, ³²T₂₅
B T₃

Length, 3'' .999.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000500	.000100	0.	.....	
12,500	25,000	.000650	.000150	0.	.....	
15,000	30,000	.000800	.000150	0.	.....	
17,500	35,000	.001000	.000200	0.	.....	
20,000	40,000	.001100	.000100	0.	.....	
22,500	45,000	.001250	.000150	— .000100	— .000100	
23,000	46,000	.001250	0.	.....	.....	
23,500	47,000	.001250	0.	.....	.....	
24,000	48,000	.001250	0.	.....	.....	
24,500	49,000	.001250	0.	.....	.....	
25,000	50,000	.001250	0.	— .000400	.000300	Elastic limit.
25,500	51,000	.001550	.000300	.....	.....	
26,000	52,000	.002250	.000700	.....	.....	
26,500	53,000	.003600	.001350	.....	.....	
27,000	54,000	.004500	.000900	.....	.....	
27,500	55,000	.005950	.001450	.004000	.004400	Ultimate strength.
45,800	91,600	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 50,000
 Compression per inch under stress at elastic limit.....inch.. 0.001250
 Ultimate strength per square inch of original section.....pounds.. 91,600
 Manner of failuretriple flexure

No. 1708

Marks, ³²T₂₅
M T₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000550	.000200	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001350	.000150	0.	.....	
10,000	50,000	.001500	.000150	0.		Elastic limit.
10,200	51,000	.001600	.000100	.....	.....	
10,400	52,000	.001700	.000100	.....	.....	
10,600	53,000	.002100	.000400	.....	.....	
10,800	54,000	.002700	.000600	.....	.....	
11,000	55,000	.005100	.002400	.003150	.003150	
11,200	56,000	.006600	.001500	.....	.....	
11,400	57,000	.007600	.001000	.....	.....	
11,600	58,000	.009000	.001400	.....	.....	
11,800	59,000	.010500	.001500	.....	.....	
12,000	60,000	.011500	.001000			Tensile strength.
12,400	62,000	.013900	.002400	.....	.....	
12,800	64,000	.016100	.002200	.....	.....	
13,200	66,000	.018400	.002300	.....	.....	
13,600	68,000	.021050	.002650	.....	.....	
14,000	70,000	.023800	.002750	.....	.....	
14,400	72,000	.026700	.002900	.....	.....	
14,800	74,000	.030250	.003550	.....	.....	
15,200	76,000	.034150	.003900	.....	.....	
15,600	78,000	.039250	.005100	.....	.....	
16,000	80,000	.045250	.006000			
16,400	82,000	.051750	.006500	.....	.....	
16,800	84,000	.061400	.009650	.....	.....	
17,200	86,000	.075300	.013900	.....	.....	
17,600	88,000	.1050	.0297			
17,700	88,500	.1450	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	88,500
Elastic limit per square inch of original section	do....	52,000
Elongation per inch after rupture	inch..	0.2550
Elongation per inch under strain at elastic limit	do....	.001700
Reduction in diameter at point of rupture	do....	.155
Reduction in area after rupture, per centum of original section		51.9
Position of rupture	at middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".26*, ".25*	

No. 1709.

Marks, $\frac{32}{M} T_{25}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000850	.000200	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001150	.000150	0.		Elastic limit.
9,000	45,000	{ .001400	.000250	.....	.....	
		{ .001800	.000400	.000350	.000350	
9,200	46,000	.002150	.000350	.....	.....	
9,400	47,000	.002550	.000400	.....	.....	
9,600	48,000	.003100	.000550	.....	.....	
9,800	49,000	.004050	.000950	.....	.....	
10,000	50,000	.007900	.003850	.006050	.005700	
10,200	51,000	.008700	.000800	.....	.....	
10,400	52,000	.009500	.000800	.....	.....	
10,600	53,000	.010850	.001350			Tensile strength.
10,800	54,000	.011750	.000900	.....	.....	
11,000	55,000	.012750	.001000	.....	.....	
11,200	56,000	.013750	.001000	.....	.....	
11,400	57,000	.014900	.001150	.....	.....	
11,600	58,000	.016050	.001150	.....	.....	
11,800	59,000	.017400	.001350	.....	.....	
12,000	60,000	.018700	.001300	.....	.....	
12,400	62,000	.021300	.002600	.....	.....	
12,800	64,000	.024100	.002800	.....	.....	
13,200	66,000	.028000	.003900	.....	.....	
13,600	68,000	.031000	.003000	.....	.....	
14,000	70,000	.035000	.004000	.....	.....	
14,400	72,000	.040000	.005000	.....	.....	
14,800	74,000	.045000	.005000	.....	.....	
15,200	76,000	.052500	.007500	.....	.....	
15,600	78,000	.062500	.010000	.....	.....	
16,000	80,000	.073500	.011000	.....	.....	
16,400	82,000	.1000	.0265	.....	.....	
16,600	83,000	.1400	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	83,000
Elastic limit per square inch of original section.....	do ..	45,000
Elongation per inch after rupture.....	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do....	.001400
Reduction in diameter at point of rupture.....	do....	.155
Reduction in area after rupture, per centum of original section.....		51.9
Position of rupture.....	".43 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".33*, ".10	

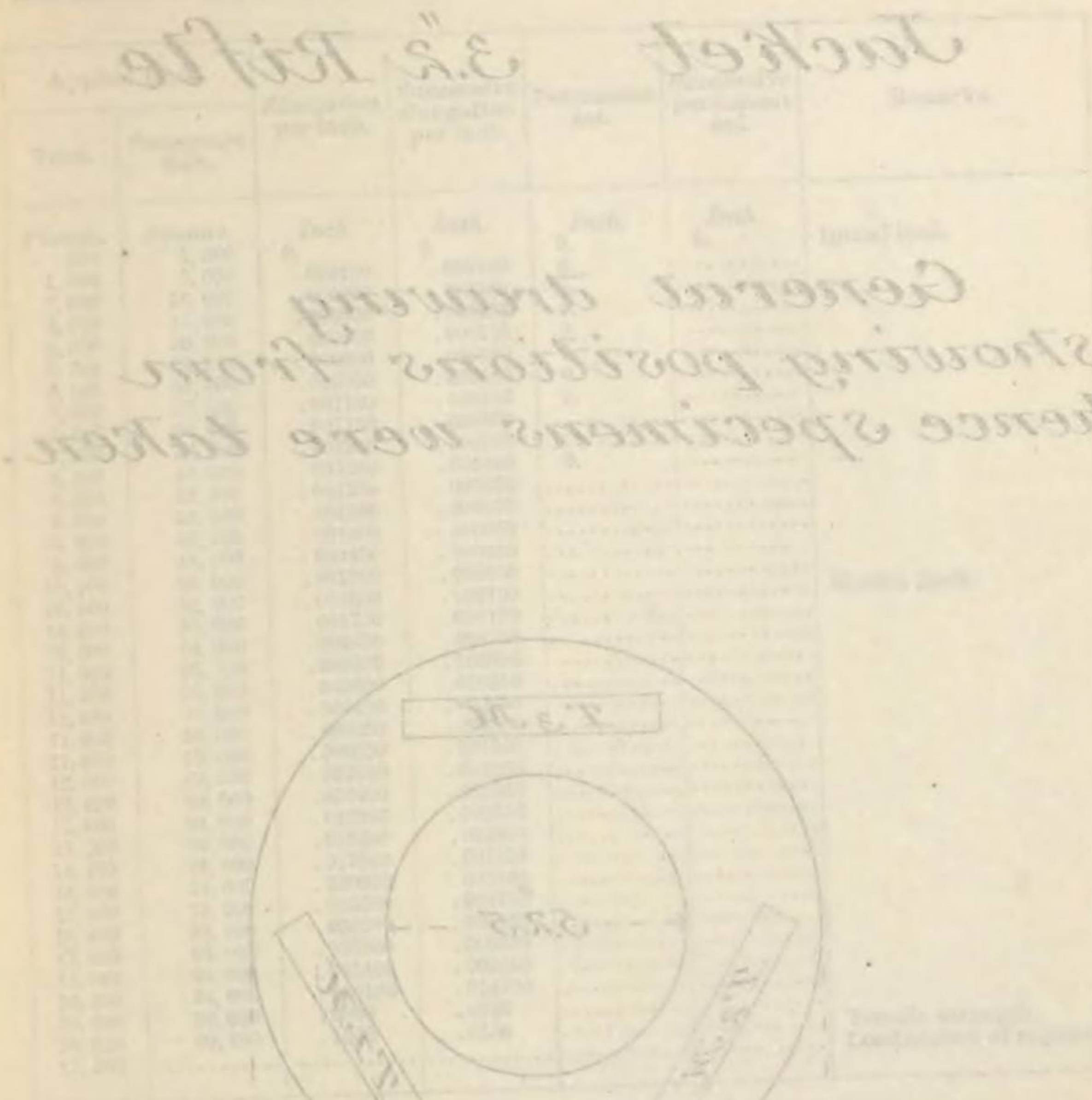
SPECIMENS FROM STEEL JACKETS

FOR

3".2 STEEL B. L. RIFLES.

No. 982.

Marked, 1/2
Diameter, 1/2
Subsidiary area, 50 square inch.

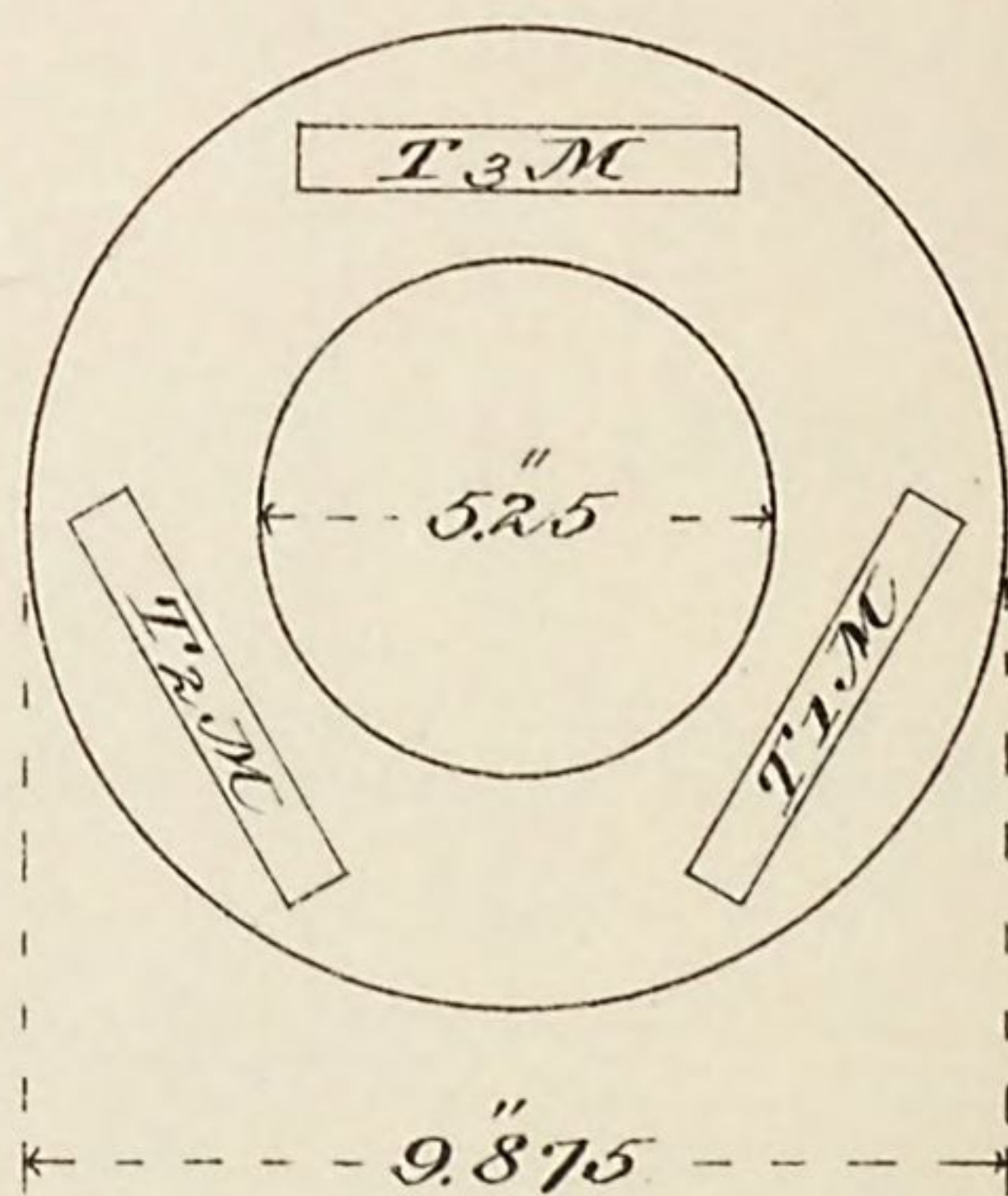


General dimensions shown in positions from where specimens were taken.

H Ex 31 40 2

Jacket 3.2 Rifle

*General drawing
showing positions from
whence specimens were taken.*



H Ex 3 / 49 2

No. 962.

Marks, ³²J₁
B T₁ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000500	.000250	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
7,200	36,000	.001150	.000050	.....	.....	
7,600	38,000	.001200	.000050	.....	.....	
8,000	40,000	.001250	.000050	0.	.....	
8,400	42,000	.001300	.000050	.....	.....	
8,800	44,000	.001350	.000050	.....	.....	
9,200	46,000	.001400	.000050	.....	.....	
9,600	48,000	.001450	.000050	.....	.....	
10,000	50,000	.001500	.000050	.....	.....	
10,400	52,000	.001600	.000100			Elastic limit.
10,600	53,000	.001750	.000150	.....	.....	
10,800	54,000	.002450	.000700	.....	.....	
11,000	55,000	.003050	.000800	.....	.....	
11,200	56,000	.003600	.000550	.....	.....	
11,400	57,000	.004400	.000800	.....	.....	
11,600	58,000	.005250	.000850	.....	.....	
11,800	59,000	.006250	.001000	.....	.....	
12,000	60,000	.007500	.001250	.....	.....	
12,400	62,000	.010400	.002900	.....	.....	
12,800	64,000	.013050	.002650	.....	.....	
13,200	66,000	.015850	.002800	.....	.....	
14,000	70,000	.017500	.001650	.....	.....	
14,800	74,000	.020600	.003100	.....	.....	
15,600	78,000	.025350	.004750	.....	.....	
16,400	82,000	.030500	.005150	.....	.....	
17,200	86,000	.037000	.006500	.....	.....	
18,000	90,000	.045400	.008400	.....	.....	
18,800	94,000	.060100	.014700	.....	.....	
19,600	98,000	.0900	.0299			Tensile strength. Load at time of rupture.
19,820	99,100	.1050	.0150	.....	.....	
17,200						

General summary.

Specific gravity.....	7.8695
Tensile strength per square inch of original section.....pounds..	99,100
Elastic limit per square inch of original section.....do.....	52,000
Elongation per inch after rupture.....inch..	0.2000
Elongation per inch under strain at elastic limit.....do.....	.001600
Reduction in diameter at point of rupture.....do.....	.115
Reduction in area after rupture, per centum of original section.....	40.5
Position of rupture.....	".55 from neck
Character of broken surface.....	dull silky
Elongation of inch sections.....	".29, ".11

No. 963.

Marks, $\frac{32}{B} \frac{J_1}{T_2} M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	0.	.....	
2,000	10,000	.000100	.000050	0.	.....	
3,000	15,000	.000300	.000100	0.	.....	
4,000	20,000	.000450	.000150	0.	.....	
5,000	25,000	.000600	.000150	0.	.....	
6,000	30,000	.000800	.000200	0.	.....	
7,000	35,000	.000950	.000150	0.	.....	
8,000	40,000	.001100	.000150	0.	.....	
8,400	42,000	.001150	.000050	.....	.....	
8,800	44,000	.001200	.000050	.....	.....	
9,200	46,000	.001250	.000050	.....	.....	
9,600	48,000	.001350	.000100	.....	.....	
10,000	50,000	.001500	.000150	0.	.....	Elastic limit.
10,200	51,000	.002400	.000900	.....	.....	
10,400	52,000	.003100	.000700	.....	.....	
10,800	54,000	.004850	.001750	.....	.....	
11,200	56,000	.006850	.002000	.....	.....	
12,000	60,000	.010400	.003550	.....	.....	
12,800	64,000	.014350	.003950	.....	.....	
13,600	68,000	.017750	.003400	.....	.....	
14,400	72,000	.022650	.004900	.....	.....	
15,200	76,000	.028500	.005850	.....	.....	
16,000	80,000	.036000	.007500	.....	.....	
16,800	84,000	.043750	.007750	.....	.....	
17,600	88,000	.058000	.014250	.....	.....	
18,400	92,000	.0700	.0120	.....	.....	
19,000	95,000	.1250	.0550	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section pounds.. 95,000
 Elastic limit per square inch of original section do... 50,000
 Elongation per inch after rupture..... inch.. 0.1650
 Elongation per inch under strain at elastic limit do... .001500
 Reduction in diameter at point of rupture..... do... .065
 Reduction in area after rupture, per centum of original section..... 24.0
 Position of rupture..... ".5 from neck
 Character of broken surface.. granular, 70 per centum; silky, 30 per centum; silky metal contains blow-hole.
 Elongation of inch sections ".21, ".12

No. 531.

Marks, $\frac{32J_1}{B T_3 M}$

Length, ".449.

Diameter, ".797.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000450	.000150	0.	.....	
10,000	20,000	.000600	.000150	0.	.....	
12,500	25,000	.000750	.000150	0.	.....	
15,000	30,000	.000900	.000150	0.	.....	
17,500	35,000	.001050	.000150	0.	.....	
20,000	40,000	.001250	.000200	0.	.....	
22,500	45,000	.001400	.000150	0.	.....	
24,000	48,000	.001600	.000200	.....	.....	
24,500	49,000	.001700	.000100			Elastic limit.
25,000	50,000	.001800	.000100	.000250	.000250	
25,500	51,000	.002050	.000250	.....	.....	
26,000	52,000	.002400	.000350	.....	.....	
26,500	53,000	.002800	.000400	.....	.....	
27,000	54,000	.003250	.000450	.....	.....	
27,500	55,000	.003950	.000700	.002050	.001800	
28,000	56,000	.004550	.000600	.....	.....	
28,500	57,000	.005300	.000750	.....	.....	
29,000	58,000	.006200	.000900	.....	.....	
29,500	59,000	.007200	.001000			Ultimate strength.
30,000	60,000	.007900	.000700	.005700	.003650	
47,900	95,800	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 48,000
 Compression per inch under stress at elastic limit..... inch.. 0.001600
 Ultimate strength per square inch of original section pounds.. 95,800
 Manner of failure triple flexure

No. 964.

Marks, ^{32 J₂}_{B T₁ M}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.	.....	
2,000	10,000	.000400	.000200	0.	.....	
3,000	15,000	.000600	.000200	0.	.....	
4,000	20,000	.000800	.000200	0.	.....	
5,000	25,000	.001000	.000200	0.	.....	
6,000	30,000	.001200	.000200	.000050	.000050	
7,000	35,000	.001350	.000150	.000050	0.	
8,000	40,000	.001500	.000150	.000050	0.	
9,200	46,000	.001750	.000250	.....	.....	
9,600	48,000	.001850	.000100			Elastic limit.
10,000	50,000	.001900	.000050	.....	.....	
10,400	52,000	.002000	.000100	.....	.....	
10,800	54,000	.002100	.000100	.....	.....	
11,200	56,000	.002200	.000100	.000200	.000150	
11,600	58,000	.002300	.000100	.....	.....	
11,800	59,000	.002400	.000100	.....	.....	
12,000	60,000	.002500	.000100	.000400	.000200	
12,200	61,000	.003000	.000500	.....	.....	
12,400	62,000	.003100	.000100	.....	.....	
12,600	63,000	.003250	.000150	.000950	.000550	Tensile strength. Load at time of rupture.
12,800	64,000	.003950	.000700	.....	.....	
13,000	65,000	.004700	.000750	.....	.....	
13,200	66,000	.005600	.000900	.....	.....	
13,600	68,000	.007800	.002200	.....	.....	
14,400	72,000	.011750	.003950	.....	.....	
15,200	76,000	.015100	.003350	.....	.....	
16,000	80,000	.019250	.004150	.....	.....	
16,800	84,000	.023350	.004100	.....	.....	
17,600	88,000	.028500	.005150	.....	.....	
18,400	92,000	.033650	.005150			
19,200	96,000	.039650	.006000	.....	.....	
20,000	100,000	.0550	.015350	.....	.....	
20,800	104,000	.0750	.0200	.....	.....	
21,200	106,000	.1200	.0450	.....	.....	
19,600						

General summary.

Specific gravity.....	7.8656
Tensile strength per square inch of original section..... pounds..	106,000
Elastic limit per square inch of original section..... do.....	60,000
Elongation per inch after rupture..... inch...	0.1650
Elongation per inch under strain at elastic limit..... do.....	.002500
Reduction in diameter at point of rupture..... do.....	.085
Reduction in area after rupture, per centum of original section.....	30.5
Position of rupture.....	$\frac{1}{2}$ inch from middle of stem
Character of broken surface.....	granular, with line of silky metal
Elongation of inch sections.....	".23", ".10

No. 965.

Marks, ³²J₂
B T₂ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000350	.000100	0.	.....	
4,000	20,000	.000450	.000100	0.	.....	
5,000	25,000	.000600	.000150	0.	.....	
6,000	30,000	.000750	.000150	0.	.....	
7,000	35,000	.000950	.000200	0.	.....	
8,000	40,000	.001100	.000150	0.	.....	
8,400	42,000	.001150	.000050	.....	.....	
8,800	44,000	.001250	.000100	.....	.....	
9,200	46,000	.001300	.000050	.....	.....	
9,600	48,000	.001350	.000050	.....	.....	
10,000	50,000	.001400	.000050	0.	.....	
10,400	52,000	.001550	.000150	.....	.....	
10,600	53,000	.001600	.000050	.....	.....	
10,800	54,000	.001650	.000050	.....	.....	
11,000	55,000	.001700	.000050	.....	.....	
11,200	56,000	.001800	.000100	0.	.....	
11,400	57,000	.001850	.000050			Elastic limit.
11,600	58,000	.002800	.000950	.....	.....	
11,800	59,000	.003100	.000300	.....	.....	
12,000	60,000	.003950	.000850	.001500	.001500	
12,400	62,000	.005750	.001800	.....	.....	
12,800	64,000	.007750	.002000	.....	.....	
13,600	68,000	.012000	.004250	.....	.....	
14,400	72,000	.016550	.004550	.....	.....	
15,200	76,000	.020750	.004200	.....	.....	
16,000	80,000	.025750	.005000	.....	.....	
16,800	84,000	.033000	.007250			Tensile strength. Load at time of rupture.
17,600	88,000	.039000	.006000	.....	.....	
18,400	92,000	.053000	.014000	.....	.....	
19,200	96,000	.0700	.0170	.....	.....	
19,880	99,400	.1100	.0400	.....	.....	
17,300						

General summary.

Tensile strength per square inch of original section.....	pounds..	99,400
Elastic limit per square inch of original section.....	do...	57,000
Elongation per inch after rupture.....	inch..	0.1850
Elongation per inch under strain at elastic limit.....	do...	.001850
Reduction in diameter at point of rupture.....	do...	.125
Reduction in area after rupture, per centum of original section.....		43.5
Position of rupture.....		".55 from neck
Character of broken surface.....	silky, with traces of granulation	
Elongation of inch sections.....		".28*, ".09

H. Ex. 31—13.

No. 532.

Marks, ^{32 J₂}_{BT₃M}Length, 4''⁴⁷.Diameter, ''⁷⁹⁸.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000450	.000150	0.	.....	
10,000	20,000	.000600	.000150	0.	.....	
12,500	25,000	.000750	.000150	0.	.....	
15,000	30,000	.000950	.000200	0.	.....	
17,500	35,000	.001050	.000100	0.	.....	
20,000	40,000	.001200	.000150	0.	.....	
20,500	41,000	.001250	.000050	.....	.....	
21,000	42,000	.001300	.000050	.....	.....	
21,500	43,000	.001350	.000050	.....	.....	
22,000	44,000	.001350	0.	.....	.....	
22,500	45,000	.001400	.000050	0.	.....	
23,000	46,000	.001450	.000050	.....	.....	
23,500	47,000	.001450	0.	.....	.....	
24,000	48,000	.001500	.000050	.....	.....	
24,500	49,000	.001550	.000050	.....	.....	
25,000	50,000	.001600	.000050	0.	.....	
25,500	51,000	.001650	.000050	.....	.....	
26,000	52,000	.001750	.000100	.....	.....	
26,500	53,000	.001800	.000050	.....	.....	
27,000	54,000	.001850	.000050			Elastic limit.
27,500	55,000	.002050	.000200	.000150	.000150	
28,000	56,000	.002400	.000350	.....	.....	
28,500	57,000	.002850	.000450	.....	.....	
29,000	58,000	.003500	.000650	.....	.....	
29,500	59,000	.004500	.001000			Ultimate strength.
30,000	60,000	.005400	.000900	.003200	.003050	
50,050	100,100	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds... 54,000
 Compression per inch under stress at elastic limit.....inch... 0.001850
 Ultimate strength per square inch of original section.....pounds... 100,100
 Manner of failure.....triple flexure

No. 986.

Marks, $\frac{32}{M} T_1 M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000350	.000250	0.	-----	
3,000	15,000	.000550	.000200	0.	-----	
4,000	20,000	.000750	.000200	.000050	.000050	
5,000	25,000	.000950	.000200	.000050	0.	
6,000	30,000	.001150	.000200	.000100	.000050	
7,000	35,000	.001350	.000200	.000150	.000050	
8,000	40,000	.001500	.000150	.000150	0.	
9,000	45,000	.001700	.000200	.000150	0.	
10,000	50,000	.001900	.000200	.000150	0.	
11,000	55,000	.002150	.000250	.000200	.000050	
11,200	56,000	.002200	.000050	-----	-----	
11,400	57,000	.002250	.000050	-----	-----	
11,600	58,000	.002300	.000050	-----	-----	
11,800	59,000	.002350	.000050	-----	-----	
12,000	60,000	.002400	.000050	.000300	.000100	Elastic limit.
12,200	61,000	.002500	.000100	-----	-----	
12,400	62,000	.002700	.000200	-----	-----	
12,600	63,000	.003050	.000350	-----	-----	
12,800	64,000	.003250	.000200	-----	-----	
13,000	65,000	.003500	.000250	.001100	.000800	
13,200	66,000	.003900	.000400	-----	-----	
13,400	67,000	.004500	.000600	-----	-----	
13,600	68,000	.006200	.001700	-----	-----	
14,000	70,000	.008350	.002150	.005300	.004200	
14,400	72,000	.009250	.000900	-----	-----	
14,800	74,000	.011500	.002250	-----	-----	
15,200	76,000	.013200	.001700	-----	-----	
15,600	78,000	.015750	.000550	-----	-----	
16,000	80,000	.017500	.001750	-----	-----	
16,400	82,000	.020500	.003000	-----	-----	
16,800	84,000	.022150	.001650	-----	-----	
17,200	86,000	.024200	.002050	-----	-----	
17,600	88,000	.026100	.001900	-----	-----	
18,000	90,000	.028650	.002550	-----	-----	
18,400	92,000	.033750	.005100	-----	-----	
18,800	94,000	.036350	.002600	-----	-----	
19,200	96,000	.040750	.004400	-----	-----	
19,600	98,000	.044750	.004000	-----	-----	
20,000	100,000	.054250	.009500	-----	-----	
20,400	102,000	.0600	.005750	-----	-----	
20,800	104,000	.0650	.0050	-----	-----	
21,200	106,000	.0900	.0250	-----	-----	
21,460	107,300	.1150	.0250	-----	-----	Tensile strength.

General summary.

Specific gravity.....	7.8590
Tensile strength per square inch of original section.....	pounds.. 107,300
Elastic limit per square inch of original section.....	do.. 60,000
Elongation per inch after rupture.....	inch.. 0.1300
Elongation per inch under strain at elastic limit.....	do.. .002400
Reduction in diameter at point of rupture.....	do.. .035
Reduction in area after rupture, per centum of original section.....	13.2
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem
Character of broken surface.....	granular; line of dull-colored metal at circumference
Elongation of inch sections.....	".13*, ".13

No. 987.

Marks, $\overset{32}{M} \overset{J_3}{T_2} \overset{M}{M}$
Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000750	.000300	0.	.....	
5,000	25,000	.001050	.000300	.000050	.000050	
6,000	30,000	.001250	.000200	.000150	.000100	
7,000	35,000	.001450	.000200	.000150	0.	
8,000	40,000	.001700	.000250	.000200	.000050	
9,000	45,000	.001950	.000250	.000250	.000050	
10,000	50,000	.002050	.000100	.000250	0.	
10,200	51,000	.002100	.000050	.....	.....	
10,400	52,000	.002150	.000050	.....	.....	
10,600	53,000	.002200	.000050	.....	.....	
10,800	54,000	.002250	.000050	.....	.....	
11,000	55,000	.002350	.000100	.000300	.000050	
11,200	56,000	.002450	.000100	.....	.....	
11,400	57,000	.002500	.000050	.....	.....	Elastic limit.
11,600	58,000	.002600	.000100	.....	.....	
11,800	59,000	.002700	.000100	.....	.....	
12,000	60,000	.003050	.000350	.000800	.000500	
12,200	61,000	.003450	.000400	.....	.....	
12,400	62,000	.003800	.000350	.....	.....	
12,600	63,000	.004300	.000500	.....	.....	
12,800	64,000	.005000	.000700	.....	.....	
13,000	65,000	.005500	.000500	.002700	.001900	
13,200	66,000	.006000	.000500	.....	.....	
13,400	67,000	.006800	.000800	.....	.....	
13,600	68,000	.007950	.001150	.....	.....	
13,800	69,000	.008450	.000500	.....	.....	
14,000	70,000	.009500	.000050	.....	.....	
14,400	72,000	.011300	.001800	.....	.....	
14,800	74,000	.012600	.001300	.....	.....	
15,200	76,000	.014600	.002000	.....	.....	
15,600	78,000	.015650	.001050	.....	.....	
16,000	80,000	.018000	.002350	.....	.....	
16,400	82,000	.019850	.001850	.....	.....	
16,800	84,000	.021000	.001150	.....	.....	
17,200	86,000	.024000	.003000	.....	.....	
17,600	88,000	.027250	.003250	.....	.....	
18,000	90,000	.030000	.002750	.....	.....	
18,400	92,000	.0320	.0020	.....	.....	
18,800	94,000	.0370	.0050	.....	.....	
19,200	96,000	.0425	.0055	.....	.....	
19,600	98,000	.0480	.0055	.....	.....	
20,000	100,000	.0545	.0065	.....	.....	
20,400	102,000	.0600	.0055	.....	.....	
20,800	104,000	.0650	.0050	.....	.....	
21,200	106,000	.0900	.0250	.....	.....	
21,450	107,250	.1200	.0300	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....pounds.. 107,250
 Elastic limit per square inch of original section.....do... 57,000
 Elongation per inch after rupture.....inch.. 0.1500
 Elongation per inch under strain at elastic limit.....do... .002500
 Reduction in diameter at point of rupture.....do... .065
 Reduction in area after rupture, per centum of original section.....23.9
 Position of rupture..... $\frac{5}{8}$ inch from neck
 Character of broken surface.....granular; radiating from a point in the circumference
 Elongation of inch sections.....".21*, ".09

No. 529.

Marks, $^{32}J_3$
M T₃ M

Length 4'' .43.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000300	.000200	0.	.....	
7,500	15,000	.000400	.000100	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000750	.000200	0.	.....	
15,000	30,000	.000900	.000150	— .000050	— .000050	
17,500	35,000	.001050	.000150	— .000050	0.	
20,000	40,000	.001250	.000200	— .000050	0.	
22,500	45,000	.001350	.000100	— .000050	0.	
23,000	46,000	.001400	.000050	.....	.....	
23,500	47,000	.001450	.000050	.....	.....	
24,000	48,000	.001450	0.	.....	.....	
24,500	49,000	.001500	.000050	.....	.....	
25,000	50,000	.001550	.000050	0.	.000050	
25,500	51,000	.001550	0.	.....	.....	
26,000	52,000	.001600	.000050	.....	.....	
26,500	53,000	.001700	.000100	.....	.....	
27,000	54,000	.001750	.000050	.....	.....	
27,500	55,000	.001800	.000050	0.	0.	
28,000	56,000	.001800	0.	.....	.....	
28,500	57,000	.001850	.000050	.....	.....	
29,000	58,000	.001900	.000050	.....	.....	
29,500	59,000	.001950	.000050			Elastic limit.
30,000	60,000	.002100	.000150	.000250	.000250	
30,500	61,000	.002300	.000200	.....	.....	
31,000	62,000	.002550	.000250	.....	.....	
31,500	63,000	.002850	.000300	.....	.....	
32,000	64,000	.003400	.000550	.....	.....	
32,500	65,000	.004100	.000700	.001800	.001550	
33,000	66,000	.004850	.000750	.....	.....	
33,500	67,000	.005650	.000800	.....	.....	
34,000	68,000	.006600	.000950	.....	.....	
34,500	69,000	.007500	.000550			Ultimate strength.
35,000	70,000	.007950	.000800	.005500	.003700	
52,900	105,800	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 59,000
 Compression per inch under stress at elastic limit inch.. 0.001950
 Ultimate strength per square inch of original section pounds.. 105,800
 Manner of failure triple flexure

[Additional specimens.]

No. 2082.

Marks, $^{32}J_3$
 $M T_4 M$ Diameter, $''$.504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	0.	.....	
2,000	10,000	.000150	.000100	0.	.....	
3,000	15,000	.000300	.000150	0.	.....	
4,000	20,000	.000450	.000150	0.	.....	
5,000	25,000	.000600	.000150	0.	.....	
6,000	30,000	.000800	.000200	0.	.....	
7,000	35,000	.000950	.000150	0.	.....	
8,000	40,000	.001150	.000200	0.	.....	
9,000	45,000	.001350	.000200	0.	.....	
9,200	46,000	.001400	.000050	.....	.....	
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001500	.000050	.....	.....	
9,800	49,000	.001550	.000050	0.	.....	
10,000	50,000	.001600	.000050			Elastic limit.
10,200	51,000	.001800	.000200	.....	.....	
10,400	52,000	.002700	.000900	.....	.....	
10,600	53,000	.003550	.000850	.....	.....	
10,800	54,000	.004300	.000750	.....	.....	
11,000	55,000	.005050	.000750	.....	.....	
11,200	56,000	.006000	.000950	.....	.....	
11,400	57,000	.006750	.000750	.....	.....	
11,600	58,000	.007650	.000900	.....	.....	
11,800	59,000	.008450	.000800	.....	.....	
12,000	60,000	.009550	.001100	.....	.....	
12,400	62,000	.011000	.001450	.....	.....	
12,800	64,000	.012550	.001550	.....	.....	
13,200	66,000	.014450	.001900	.....	.....	
13,600	68,000	.016350	.001900	.....	.....	
14,000	70,000	.018550	.002200	.....	.....	
14,400	72,000	.020750	.002200	.....	.....	
14,800	74,000	.022750	.002000	.....	.....	
15,200	76,000	.025250	.002500	.....	.....	
15,600	78,000	.028050	.002800	.....	.....	
16,000	80,000	.030850	.002800	.....	.....	
16,400	82,000	.034750	.003900	.....	.....	
16,800	84,000	.038250	.003500	.....	.....	
17,200	86,000	.042350	.004100	.....	.....	
17,600	88,000	.047500	.005150	.....	.....	
18,000	90,000	.054500	.007000	.....	.....	
18,400	92,000	.062000	.007500	.....	.....	
18,800	94,000	.9500	.0330			Tensile strength.
19,320	96,600	.1200	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	96,600
Elastic limit per square inch of original section.....	do...	50,000
Elongation per inch after rupture.....	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do...	.001600
Reduction in diameter at point of rupture.....	do...	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface.....	granular; dull center	
Elongation of inch sections.....	$''$.29*, $''$.14	

No. 2083.

Marks, $\frac{32 J_3}{M T_5 M}$ Diameter, $\frac{11}{16}$.504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000850	.000200	0.	.....	
7,000	35,000	.001050	.000200	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001350	.000150	0.	.....	
9,200	46,000	.001350	0.			Elastic limit.
9,400	47,000	.001400	.000050	.....	.....	
9,600	48,000	.001450	.000050	.....	.....	
9,800	49,000	.001500	.000050	.....	.....	
10,000	50,000	.001600	.000100	0.	.....	
10,200	51,000	.002250	.000650	.....	.....	
10,400	52,000	.003700	.001450	.....	.....	
10,600	53,000	.004700	.001000	.....	.....	
10,800	54,000	.005600	.000900	.....	.....	
11,000	55,000	.006450	.000850	.....	.....	
11,200	56,000	.007450	.001000	.....	.....	
11,400	57,000	.008550	.001100	.....	.....	
11,600	58,000	.009500	.000950	.....	.....	
11,800	59,000	.010050	.000550	.....	.....	
12,000	60,000	.010850	.000800	.....	.....	
12,400	62,000	.012450	.001600	.....	.....	
12,800	64,000	.014150	.001700	.....	.....	
13,200	66,000	.016350	.002200	.....	.....	
13,600	68,000	.018400	.002050	.....	.....	
14,000	70,000	.020350	.001950	.....	.....	
14,400	72,000	.022850	.002500	.....	.....	
14,800	74,000	.025500	.002650	.....	.....	
15,200	76,000	.028350	.002850	.....	.....	
15,600	78,000	.031000	.002650	.....	.....	
16,000	80,000	.033750	.002750	.....	.....	
16,400	82,000	.038750	.005000	.....	.....	
16,800	84,000	.042500	.003750	.....	.....	
17,200	86,000	.048000	.005500	.....	.....	
17,600	88,000	.053750	.005750	.....	.....	
18,000	90,000	.062250	.008500	.....	.....	
18,400	92,000	.0800	.017750	.....	.....	
18,800	94,000	.0950	.0150	.....	.....	
18,920	94,600	.1350	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	94,600
Elastic limit per square inch of original section.....	do ..	50,000
Elongation per inch after rupture	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do ..	.001600
Reduction in diameter at point of rupture	do ..	.085
Reduction in area after rupture, per centum of original section		30.7
Position of rupture	".10 from middle of stem	
Character of broken surface	granular	
Diameter ".2 from point of rupture	".39	
Elongation of inch sections	".30*, ".13	

No. 2084.

Marks, $\frac{32}{M} \frac{J_3}{T_6} M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000300	.000100	0.	.....	
4,000	20,000	.000500	.000200	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000850	.000200	0.	.....	
7,000	35,000	.001050	.000200	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001350	.000150			Elastic limit.
9,200	46,000	.001400	.000050	.....	.....	
9,400	47,000	.001400	0.	.....	.....	
9,600	48,000	.001450	.000050	.....	.....	
9,800	49,000	.001550	.000100	.....	.....	
10,000	50,000	.001800	.000250	.....	.....	
10,200	51,000	.002500	.000700	.....	.....	
10,400	52,000	.003300	.000800	.....	.....	
10,600	53,000	.004350	.001050	.....	.....	
10,800	54,000	.005300	.000950	.....	.....	
11,000	55,000	.006350	.001050			
11,200	56,000	.007150	.000800	.....	.....	
11,400	57,000	.007900	.000750	.....	.....	
11,600	58,000	.008700	.000800	.....	.....	
11,800	59,000	.009600	.000900	.....	.....	
12,000	60,000	.014000	.000800	.....	.....	
12,400	62,000	.012100	.001700	.....	.....	
12,800	64,000	.014050	.001950	.....	.....	
13,200	66,000	.015700	.001650	.....	.....	
13,600	68,000	.018000	.002300	.....	.....	
14,000	70,000	.020500	.002500			Tensile strength.
14,400	72,000	.022500	.002000	.....	.....	
14,800	74,000	.024950	.002450	.....	.....	
15,200	76,000	.027750	.002800	.....	.....	
15,600	78,000	.030150	.002400	.....	.....	
16,000	80,000	.034150	.004000	.....	.....	
16,400	82,000	.037700	.003550	.....	.....	
16,800	84,000	.041850	.004150	.....	.....	
17,200	86,000	.047000	.005150	.....	.....	
17,600	88,000	.053500	.006500	.....	.....	
18,000	90,000	.060600	.007100	.....	.....	
18,400	92,000	.0700	.0094	.....	.....	
18,800	94,000	.0950	.0250	.....	.....	
18,850	94,250	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	94,250
Elastic limit per square inch of original section.....	do...	49,000
Elongation per inch after rupture.....	inch...	0.1050
Elongation per inch under strain at elastic limit.....	do...	.001550
Reduction in diameter at point of rupture.....	do...	.035
Reduction in area after rupture, per centum of original section.....	.....	13.2
Position of rupture.....	$\frac{1}{4}$ inch from neck	
Character of broken surface.....	granular; line of dull-colored metal across broken surface	
Elongation of inch sections.....	"12", ".09	

[Additional specimens.]

No. 2396.

Marks, $^{32}J_3$
 $M T_7 M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000300	.000150	0.	-----	
3,000	15,000	.000500	.000200	0.	-----	
4,000	20,000	.000650	.000150	0.	-----	
5,000	25,000	.000800	.000150	0.	-----	
6,000	30,000	.000950	.000150	0.	-----	
7,000	35,000	.001150	.000200	-----	-----	
8,000	40,000	.001350	.000200	-----	-----	
9,000	45,000	.001550	.000200	-----	-----	
9,200	46,000	.001600	.000050	-----	-----	Elastic limit.
9,400	47,000	.001650	.000050	-----	-----	
9,600	48,000	.001650	0.	-----	-----	
9,800	49,000	.001700	.000050	-----	-----	
10,000	50,000	.001800	.000100	-----	-----	
10,200	51,000	.001900	.000100	-----	-----	
10,400	52,000	.002100	.000200	-----	-----	
10,600	53,000	.002550	.000450	-----	-----	
10,800	54,000	.003100	.000550	-----	-----	
11,000	55,000	.004050	.000950	-----	-----	
11,200	56,000	.004850	.000800	-----	-----	
11,400	57,000	.005650	.000800	-----	-----	
11,600	58,000	.006300	.000650	-----	-----	
11,800	59,000	.007150	.000850	-----	-----	
12,000	60,000	.008100	.000950	-----	-----	
12,400	62,000	.009750	.001650	-----	-----	
12,800	64,000	.011650	.001900	-----	-----	
13,200	66,000	.013500	.001850	-----	-----	
13,600	68,000	.015100	.001600	-----	-----	
14,000	70,000	.017100	.002000	-----	-----	Tensile strength.
14,400	72,000	.019100	.002000	-----	-----	
14,800	74,000	.020750	.001650	-----	-----	
15,200	76,000	.022650	.001900	-----	-----	
15,600	78,000	.025100	.002450	-----	-----	
16,000	80,000	.027550	.002450	-----	-----	
16,400	82,000	.030250	.002700	-----	-----	
16,800	84,000	.033500	.003250	-----	-----	
17,200	86,000	.036500	.003000	-----	-----	
17,600	88,000	.041050	.004550	-----	-----	
18,000	90,000	.045500	.004450	-----	-----	
18,400	92,000	.0500	.0045	-----	-----	
18,800	94,000	.0600	.0100	-----	-----	
19,200	96,000	.0650	.0050	-----	-----	
19,600	98,000	.0800	.0150	-----	-----	
19,940	99,700	.1200	.0400	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	99,700
Elastic limit per square inch of original section	do...	51,000
Elongation per inch after rupture.....	inch..	0.2050
Elongation per inch under strain at elastic limit	do...	.001900
Reduction in diameter at point of rupture.....	do...	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture	1".05 from neck	
Character of broken surface.....	silky, interspersed with granular metal	
Elongation of inch sections.....	".26, ".15	

No. 2397.

Marks, $\frac{32 J_3}{M T_s M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000150	.....	.....	
8,000	40,000	.001150	.000150	.....	.....	
9,000	45,000	.001400	.000250	.....	.....	
9,600	48,000	.001500	.000100			Elastic limit.
9,800	49,000	.001600	.000100	.....	.....	
10,000	50,000	.002000	.000400	.....	.....	
10,200	51,000	.002450	.000450	.....	.....	
10,400	52,000	.003200	.000750	.....	.....	
10,600	53,000	.004200	.001000	.....	.....	
10,800	54,000	.005150	.000950	.....	.....	
11,000	55,000	.005950	.000800	.....	.....	
11,200	56,000	.006700	.000750	.....	.....	
11,400	57,000	.007700	.001000	.....	.....	
11,600	58,000	.008600	.000900	.....	.....	
11,800	59,000	.009150	.000550	.....	.....	
12,000	60,000	.010100	.000950	.....	.....	
12,400	62,000	.012100	.002000	.....	.....	
12,800	64,000	.014100	.002000	.....	.....	
13,200	66,000	.016250	.002150	.....	.....	
13,600	68,000	.018100	.001850	.....	.....	
14,000	70,000	.019750	.001650	.....	.....	
14,400	72,000	.021600	.001850	.....	.....	
14,800	74,000	.024000	.002400	.....	.....	
15,200	76,000	.026550	.002550	.....	.....	
15,600	78,000	.029500	.002950	.....	.....	
16,000	80,000	.033000	.003500	.....	.....	
16,400	82,000	.036700	.003700	.....	.....	
16,800	84,000	.040000	.003300	.....	.....	
17,200	86,000	.043750	.003750	.....	.....	
17,600	88,000	.049000	.005250	.....	.....	
18,000	90,000	.0550	.0060	.....	.....	
18,400	92,000	.0650	.0100	.....	.....	
18,800	94,000	.0800	.0150	.....	.....	
19,200	96,000	.1050	.0250	.....	.....	
19,280	96,400	.1300	.0250			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	96,400
Elastic limit per square inch of original section.....	do...	49,000
Elongation per inch after rupture.....	inch..	0.2200
Elongation per inch under strain at elastic limit.....	do...	.001600
Reduction in diameter at point of rupture.....	do...	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	" .70 from neck	
Character of broken surface.....	silky, with traces of granulation	
Elongation of inch sections.....	" .31", ".13	

No. 2398.

Marks, $^{32}J_3$
M T₉ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.	-----	
2,000	10,000	.000400	.000200	0.	-----	
3,000	15,000	.000600	.000200	0.	-----	
4,000	20,000	.000750	.000150	0.	-----	
5,000	25,000	.000900	.000150	0.	-----	
6,000	30,000	.001100	.000200	0.	-----	
7,000	35,000	.001250	.000150	-----	-----	
8,000	40,000	.001400	.000150	-----	-----	
9,000	45,000	.001600	.000200	-----	-----	
9,200	46,000	.001650	.000050	-----	-----	
9,400	47,000	.001650	0.	-----	-----	
9,600	48,000	.001700	.000050	-----	-----	
9,800	49,000	.001800	.000100	-----	-----	Elastic limit.
10,000	50,000	.002150	.000350	-----	-----	
10,200	51,000	.003300	.001150	-----	-----	
10,400	52,000	.003700	.000400	-----	-----	
10,600	53,000	.004650	.000950	-----	-----	
10,800	54,000	.005500	.000850	-----	-----	
11,000	55,000	.006250	.000750	-----	-----	
11,200	56,000	.007100	.000850	-----	-----	
11,400	57,000	.008100	.001000	-----	-----	
11,600	58,000	.008750	.000650	-----	-----	
11,800	59,000	.009600	.000850	-----	-----	
12,000	60,000	.010400	.000800	-----	-----	
12,400	62,000	.012500	.002100	-----	-----	
12,800	64,000	.014350	.001850	-----	-----	
13,200	66,000	.016050	.001700	-----	-----	
13,600	68,000	.018250	.002200	-----	-----	
14,000	70,000	.020250	.002000	-----	-----	
14,400	72,000	.022500	.002250	-----	-----	
14,800	74,000	.025000	.002500	-----	-----	
15,200	76,000	.027250	.002250	-----	-----	
15,600	78,000	.030000	.002750	-----	-----	
16,000	80,000	.033500	.003500	-----	-----	
16,400	82,000	.037100	.003600	-----	-----	
16,800	84,000	.040850	.003750	-----	-----	
17,200	86,000	.046500	.005650	-----	-----	
17,600	88,000	.052500	.006000	-----	-----	
18,000	90,000	.0600	.0075	-----	-----	
18,400	92,000	.0650	.0050	-----	-----	
18,800	94,000	.0850	.0200	-----	-----	
19,050	95,250	.1150	.0300	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	95,250
Elastic limit per square inch of original section.....	do...	49,000
Elongation per inch after rupture.....	inch..	0.1450
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do...	.055
Reduction in area after rupture, per centum of original section.....		20.5
Position of rupture.....		".80 from neck
Character of broken surface.....	granular, with line of flaky metal	
Elongation of inch sections.....		".18*, ".11

No. 966.

Marks, $M T_1 M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	0.	.....	
2,000	10,000	.000150	.000100	0.	.....	
3,000	15,000	.000300	.000150	0.	.....	
4,000	20,000	.000450	.000150	0.	.....	
5,000	25,000	.000550	.000100	0.	.....	
6,000	30,000	.000650	.000100	0.	.....	
7,000	35,000	.000850	.000200	0.	.....	
8,000	40,000	.001000	.000150	0.	.....	
8,800	44,000	.001200	.000200	.....	.....	
9,200	46,000	.001250	.000050	.....	.....	
9,600	48,000	.001300	.000050	.....	.....	
10,000	50,000	.001350	.000050	0.	.....	
10,400	52,000	.001450	.000100	.....	.....	
10,800	54,000	.001550	.000100	.....	.....	
11,200	56,000	.001600	.000050	.....	.....	
11,600	58,000	.001750	.000150	.....	.....	
11,800	59,000	.001800	.000050			Elastic limit.
12,000	60,000	.002000	.000200	.000100	.000100	
12,200	61,000	.002250	.000250	.....	.....	
12,400	62,000	.002550	.000300	.....	.....	
12,600	63,000	.003250	.000700	.....	.....	
12,800	64,000	.004000	.000750	.....	.....	
13,600	68,000	.007750	.003750	.....	.....	
14,400	72,000	.012250	.004500	.....	.....	
15,200	76,000	.015750	.003500	.....	.....	
16,000	80,000	.019750	.004000	.....	.....	
16,800	84,000	.024500	.004750			Tensile strength.
17,600	88,000	.030150	.005650	.....	.....	
18,400	92,000	.036750	.006600	.....	.....	
19,200	96,000	.045000	.008250	.....	.....	
20,000	100,000	.0600	.0150	.....	.....	
20,800	104,000	.0950	.0350	.....	.....	
20,820	104,100	.1000	.0050	.....	.....	

General summary.

Specific gravity.....	7.8666
Tensile strength per square inch of original section..... pounds..	104,100
Elastic limit per square inch of original section..... do...	59,000
Elongation per inch after rupture..... inch..	0.1050
Elongation per inch under strain at elastic limit..... do...	.001800
Reduction in diameter at point of rupture..... do...	.035
Reduction in area after rupture, per centum of original section.....	13.5
Position of rupture.....	".45 from neck
Character of broken surface.....	granular; line of silky metal near circumference
Elongation of inch sections.....	".12*, ".09

No. 967.

Marks, $\frac{32}{M} \frac{J_4}{T_2 M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	0.	.....	
2,000	10,000	.000100	.000050	0.	.....	
3,000	15,000	.000300	.000200	0.	.....	
4,000	20,000	.000450	.000150	0.	.....	
5,000	25,000	.000600	.000150	0.	.....	
6,000	30,000	.000800	.000200	0.	.....	
7,000	35,000	.001000	.000200	0.	.....	
8,000	40,000	.001200	.000200	0.	.....	
8,800	44,000	.001350	.000150	.....	.....	
9,200	46,000	.001500	.000150			Elastic limit.
9,600	48,000	.001550	.000050	.....	.....	
10,000	50,000	.001650	.000100	0.	.....	
10,400	52,000	.001750	.000100	.....	.....	
10,800	54,000	.001950	.000200	.....	.....	
11,200	56,000	.002100	.000150	.....	.....	
11,600	58,000	.002350	.000250	.....	.....	
12,000	60,000	.002900	.000550	.000750	.000750	
12,400	62,000	.003850	.000950	.....	.....	
12,800	64,000	.005500	.001650	.....	.....	
13,600	68,000	.008900	.003400			Tensile strength.
14,400	72,000	.013000	.004100	.....	.....	
15,200	76,000	.017750	.004750	.....	.....	
16,000	80,000	.021750	.004000	.....	.....	
16,800	84,000	.025000	.003250	.....	.....	
17,600	88,000	.029600	.004600	.....	.....	
18,400	92,000	.031650	.002050	.....	.....	
19,200	96,000	.039500	.007850	.....	.....	
20,000	100,000	.0650	.0255	.....	.....	
20,800	104,000	.1050	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section pounds.. 104,000
 Elastic limit per square inch of original section do... 52,000
 Elongation per inch after rupture..... inch.. 0.1800
 Elongation per inch under strain at elastic limit..... do... .001750
 Reduction in diameter at point of rupture..... do... .045
 Reduction in area after rupture, per centum of original section 17
 Position of rupture..... at middle of stem
 Character of broken surface, granular, radiating from a line of silky metal, which extends from the
 circumference to the center.
 Elongation of inch sections..... ".13, ".23*

No. 533.

Marks, $\frac{32}{M}T\frac{4}{M}$ Length, 4''⁵.Diameter, ''⁷.798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000500	.000200	0.	.....	
10,000	20,000	.000600	.000100	0.	.....	
12,500	25,000	.000800	.000200	0.	.....	
15,000	30,000	.000950	.000150	0.	.....	
17,500	35,000	.001100	.000150	0.	.....	
20,000	40,000	.001250	.000150	— .000050	— .000050	
22,500	45,000	.001350	.000100	— .000050	0.	
25,000	50,000	.001500	.000150	— .000100	— .000050	
25,500	51,000	.001500	0.	.....	.....	
26,000	52,000	.001550	.000050	.....	.....	
26,500	53,000	.001550	0.	.....	.....	
27,000	54,000	.001550	0.	.....	.....	
27,500	55,000	.001600	.000050	— .000150	— .000050	
28,000	56,000	.001600	0.	.....	.....	
28,500	57,000	.001600	0.	.....	.....	
29,000	58,000	.001650	.000050			Elastic limit.
29,500	59,000	.001750	.000100	.....	.....	
30,000	60,000	.001850	.000100	— .000050	.000100	
30,500	61,000	.002100	.000250	.....	.....	
31,000	62,000	.002350	.000250			Ultimate strength.
31,500	63,000	.003000	.000650	.....	.....	
32,000	64,000	.003600	.000600	.....	.....	
32,500	65,000	.004550	.000950	.002300	.002350	
52,000	104,000	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds. 58,000
 Compression per inch under stress at elastic limitdo. 0.001650
 Ultimate strength per square inch of original section 104,000
 Manner of failuretriple flexure

[Additional specimens.]

No. 2085.

Marks, $\frac{32}{M} J_4$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000700	.000200	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001050	.000200	0.	.....	
7,000	35,000	.001200	.000150	.000050	.000050	
8,000	40,000	.001350	.000150	.000050	0.	
9,000	45,000	.001500	.000150	.000050	0.	
9,200	46,000	.001600	.000100			Elastic limit.
9,400	47,000	.001600	0.	.....	.....	
9,600	48,000	.001650	.000050	.....	.....	
9,800	49,000	.001700	.000050	.....	.....	
10,000	50,000	.001800	.000100	.000100	.000050	
10,200	51,000	.001950	.000150	.....	.....	
10,400	52,000	.002150	.000200	.....	.....	
10,600	53,000	.003500	.001350	.....	.....	
10,800	54,000	.005050	.001550	.....	.....	
11,000	55,000	.006100	.001050	.....	.....	
11,200	56,000	.007200	.001100	.....	.....	
11,400	57,000	.008000	.000800	.....	.....	
11,600	58,000	.008950	.000950	.....	.....	
11,800	59,000	.009600	.000650	.....	.....	
12,000	60,000	.010250	.000650	.....	.....	
12,400	62,000	.012250	.002000	.....	.....	
12,800	64,000	.014150	.001900	.....	.....	
13,200	66,000	.015850	.001700	.....	.....	
13,600	68,000	.017800	.001950	.....	.....	
14,000	70,000	.020000	.002200	.....	.....	
14,400	72,000	.022500	.002500	.....	.....	
14,800	74,000	.025250	.002750	.....	.....	
15,200	76,000	.028250	.003000	.....	.....	
15,600	78,000	.031100	.002850	.....	.....	
16,000	80,000	.034250	.003150	.....	.....	
16,400	82,000	.038250	.004000	.....	.....	
16,800	84,000	.042500	.004250	.....	.....	
17,200	86,000	.047900	.005400	.....	.....	
17,600	88,000	.054000	.006100	.....	.....	
18,000	90,000	.062000	.008000	.....	.....	
18,400	92,000	.0700	.0080	.....	.....	
18,800	94,000	.1000	.0300	.....	.....	
18,870	94,350	.1200	.0200			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	94,350
Elastic limit per square inch of original section.....	do...	50,000
Elongation per inch after rupture.....	inch..	0.2100
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do ..	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....	".4 from neck	
Character of broken surface.....	granular; dull center	
Elongation of inch sections.....	".25", ".17	

No. 2086.

Marks, $\overset{32}{M} \overset{J_4}{T_5} M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000700	.000100	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001150	.000250	0.	.....	
8,000	40,000	.001250	.000100	0.	.....	
9,000	45,000	.001400	.000150	0.	.....	
9,200	46,000	.001400	0.			Elastic limit.
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001550	.000100	.....	.....	
9,800	49,000	.001600	.000050	.....	.....	
10,000	50,000	.001650	.000050	.....	.....	
10,200	51,000	.001900	.000250	.....	.....	
10,400	52,000	.004350	.002450	.....	.....	
10,600	53,000	.005700	.001350	.....	.....	
10,800	54,000	.006700	.001000	.....	.....	
11,000	55,000	.007700	.001000	.....	.....	
11,200	56,000	.008600	.000900	.....	.....	
11,400	57,000	.009350	.000750	.....	.....	
11,600	58,000	.010150	.000800	.....	.....	
11,800	59,000	.011150	.001000	.....	.....	
12,000	60,000	.012150	.001000	.....	.....	
12,400	62,000	.014050	.001900	.....	.....	
12,800	64,000	.015950	.001900	.....	.....	
13,200	66,000	.018050	.002100	.....	.....	
13,600	68,000	.020600	.002550	.....	.....	
14,000	70,000	.023000	.002400	.....	.....	
14,400	72,000	.025500	.002500	.....	.....	
14,800	74,000	.028750	.003250	.....	.....	
15,200	76,000	.032500	.003750	.....	.....	
15,600	78,000	.035650	.003150	.....	.....	
16,000	80,000	.039550	.003900	.....	.....	
16,400	82,000	.044550	.005000	.....	.....	
16,800	84,000	.050000	.005450	.....	.....	
17,200	86,000	.057500	.007500	.....	.....	
17,600	88,000	.0650	.0075	.....	.....	
18,000	90,000	.0850	.0200	.....	.....	
18,380	91,900	.1350	.0500			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	91,900
Elastic limit per square inch of original section	do...	50,000
Elongation per inch after rupture	inch..	0.2050
Elongation per inch under strain at elastic limit	do...	.001650
Reduction in diameter at point of rupture	do...	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture		".55 from neck
Character of broken surface		granular; dull spot at circumference
Elongation of inch sections		".28", ".13

No. 2087.

Marks, $\overset{32}{M} \overset{J_1}{T_6} M$ Diameter, $\overset{11}{.505}$.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000300	.000100	0.	.....	
4,000	20,000	.000450	.000150	0.	.....	
5,000	25,000	.000650	.000200	0.	.....	
6,000	30,000	.000850	.000200	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001150	.000150	0.	.....	
9,000	45,000	.001400	.000250	0.	.....	
9,200	46,000	.001400	0.	.....	.....	
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001500	.000050	.....	.....	
9,800	49,000	.001550	.000050	.....	.....	
10,000	50,000	.001650	.000100	.000050	.000050	Elastic limit.
10,200	51,000	.001850	.000200	.....	.....	
10,400	52,000	.004000	.002150	.....	.....	
10,600	53,000	.005650	.001650	.....	.....	
10,800	54,000	.006600	.000950	.....	.....	
11,000	55,000	.007500	.000900	.....	.....	
11,200	56,000	.008200	.000700	.....	.....	
11,400	57,000	.008900	.000700	.....	.....	
11,600	58,000	.009750	.000850	.....	.....	
11,800	59,000	.010600	.000850	.....	.....	
12,000	60,000	.011350	.000750	.....	.....	
12,400	62,000	.013500	.002150	.....	.....	
12,800	64,000	.015050	.001550	.....	.....	
13,200	66,000	.017450	.002400	.....	.....	
13,600	68,000	.019550	.002100	.....	.....	
14,000	70,000	.022000	.002450			Tensile strength.
14,400	72,000	.024750	.002750	.....	.....	
14,800	74,000	.027500	.002750	.....	.....	
15,200	76,000	.030250	.002750	.....	.....	
15,600	78,000	.033500	.003250	.....	.....	
16,000	80,000	.037250	.003750	.....	.....	
16,400	82,000	.041500	.004250	.....	.....	
16,800	84,000	.046500	.005000	.....	.....	
17,200	86,000	.052500	.006000	.....	.....	
17,600	88,000	.060000	.007500	.....	.....	
18,000	90,000	.0700	.0100	.....	.....	
18,400	92,000	.0900	.0200	.....	.....	
18,670	93,350	.1350	.0450	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	93,350
Elastic limit per square inch of original section.....	do....	50,000
Elongation per inch after rupture.....	inch..	0.2250
Elongation per inch under strain at elastic limit.....	do....	.001650
Reduction in diameter at point of rupture.....	do....	.105
Reduction in area after rupture, per centum of original section.....		37.1
Position of rupture.....	".05 from middle of stem	
Character of broken surface.....	granular; dull spot near circumference	
Elongation of inch sections.....	".28*, ".17	

H. Ex. 31—14

No. 988.

Marks, $^{32}J_5$
M T, M

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000300	.000100	0.	.....	
4,000	20,000	.000450	.000150	0.	.....	
5,000	25,000	.000550	.000100	0.	.....	
6,000	30,000	.000700	.000150	0.	.....	
7,000	35,000	.000850	.000150	0.	.....	
8,000	40,000	.001050	.000200	0.	.....	
9,000	45,000	.001200	.000150	0.	.....	
10,000	50,000	.001400	.000200	0.	.....	
11,000	55,000	.001600	.000200	0.		Elastic limit.
11,200	56,000	.001650	.000050	.....	.....	
11,400	57,000	.001950	.000300	.....	.....	
11,600	58,000	.002600	.000650	.....	.....	
11,800	59,000	.003500	.000900	.....	.....	
12,000	60,000	.004450	.000950	.002500	.002500	
12,400	62,000	.006300	.001850	.....	.....	
12,800	64,000	.0080	.0017	.....	.....	
13,200	66,000	.0100	.0020	.....	.....	
13,600	68,000	.0115	.0015	.....	.....	
14,000	70,000	.0125	.0010	.....	.....	
14,400	72,000	.0140	.0015			Tensile strength.
14,800	74,000	.0160	.0020	.....	.....	
15,200	76,000	.0175	.0015	.....	.....	
15,600	78,000	.0200	.0025	.....	.....	
16,000	80,000	.0220	.0020	.....	.....	
16,400	82,000	.0240	.0020	.....	.....	
16,800	84,000	.0265	.0025	.....	.....	
17,200	86,000	.0290	.0025	.....	.....	
17,600	88,000	.0315	.0025	.....	.....	
18,000	90,000	.0350	.0035	.....	.....	
18,400	92,000	.0380	.0030	.....	.....	
18,600	93,000	.0405	.0025	.....	.....	
19,200	96,000	.0525	.0120	.....	.....	
19,600	98,000	.0700	.0175	.....	.....	
20,000	100,000	.1000	.0300	.....	.....	
20,180	100,900	.1250	.0250	.....	.....	

General summary.

Specific gravity	7.8750
Tensile strength per square inch of original section	pounds.. 100,900
Elastic limit per square inch of original section	do. 56,000
Elongation per inch after rupture	inch.. 0.1950
Elongation per inch under strain at elastic limit	do. .... .001650
Reduction in diameter at point of rupture	do. .... .104
Reduction in area after rupture, per centum of original section	37.1
Position of rupture	".50 from middle of stem
Character of broken surface	granular; dull silky center
Elongation of inch sections	".28*, ".11

No. 989.

Marks, $^{32}J_5$
 $M T_2 M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	0.	.....	
2,000	10,000	.000200	.000150	0.	.....	
3,000	15,000	.000500	.000300	0.	.....	
4,000	20,000	.000700	.000200	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001050	.000200	.000050	.000050	
7,000	35,000	.001200	.000150	.000050	0.	
8,000	40,000	.001400	.000200	.000100	.000050	
9,000	45,000	.001600	.000200	.000100	0.	
10,000	50,000	.001850	.000250	.000100	0.	
11,000	55,000	.002000	.000150	.000100	0.	Elastic limit.
11,200	56,000	.002050	.000050	.....	.....	
11,400	57,000	.002750	.000700	.....	.....	
11,600	58,000	.003500	.000750	.....	.....	
11,800	59,000	.004550	.001050	.....	.....	
12,000	60,000	.005250	.000700	.002900	.002800	
12,400	62,000	.0070	.001750	.....	.....	
12,800	64,000	.0085	.0015	.....	.....	
13,200	66,000	.0110	.0025	.....	.....	
13,600	68,000	.0125	.0015	.....	.....	
14,000	70,000	.0145	.0020	.....	.....	
14,400	72,000	.0170	.0025	.....	.....	
14,800	74,000	.0195	.0025	.....	.....	
15,200	76,000	.0220	.0025	.....	.....	
15,600	78,000	.0245	.0025	.....	.....	
16,000	80,000	.0285	.0040	.....	.....	
16,400	82,000	.0310	.0025	.....	.....	
16,800	84,000	.0340	.0030	.....	.....	
17,200	86,000	.0380	.0040	.....	.....	
17,600	88,000	.0420	.0040	.....	.....	
18,000	90,000	.0450	.0030	.....	.....	
18,400	92,000	.0490	.0040	.....	.....	
18,800	94,000	.0565	.0075	.....	.....	
19,200	96,000	.0600	.0035	.....	.....	
19,600	98,000	.0750	.0150	.....	.....	
20,000	100,000					Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	100,000
Elastic limit per square inch of original section.....	do.	56,000
Elongation per inch after rupture.....	inch..	0.1350
Elongation per inch under strain at elastic limit.....	do.	.002050
Reduction in diameter at point of rupture.....	do.	.055
Reduction in area after rupture, per centum of original section.....		20.5
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface....	granular; line of dull-colored metal extends across the broken surface	
Elongation of inch sections.....	".17*, ".10	

No. 530.

Marks, ³²J₅
MT₃M
Length, 4''⁵⁰.
Diameter, ''⁷⁹⁸.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000750	.000200	0.	.....	
15,000	30,000	.000850	.000100	0.	.....	
17,500	35,000	.001000	.000150	0.	.....	
20,000	40,000	.001150	.000150	0.	.....	
22,500	45,000	.001300	.000150	0.	.....	
25,000	50,000	.001550	.000250	0.	.....	
25,500	51,000	.001600	.000050	.....	.....	
26,000	52,000	.001800	.000200	.....	.....	
26,500	53,000	.001850	.000050	.....	.....	
27,000	54,000	.001900	.000050			Elastic limit.
27,500	55,000	.002050	.000150	.000300	.000300	
28,000	56,000	.002600	.000550	.....	.....	
28,500	57,000	.003450	.000850	.....	.....	
29,000	58,000	.004250	.000800	.....	.....	
29,500	59,000	.005850	.001600			Ultimate strength.
30,000	60,000	.007500	.001650	.005150	.004850	
49,650	99,300	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 54,000
Compression per inch under stress at elastic limit.....inch.. 0.001900
Ultimate strength per square inch of original section.....pounds.. 99,300
Manner of failure.....triple flexure

NEW JACKET NO. 5.

No. 2262.

Marks, $^{32}J_5$
B T₄ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001150	.000200	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001450	.000150	0.	.....	
10,000	50,000	.001600	.000150	0.		Elastic limit.
10,200	51,000	.001600	0.	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.001800	.000100	.....	.....	
11,000	55,000	.001850	.000050	.....	.....	
11,200	56,000	.008250	.008400	.....	.....	
11,400	57,000	.008950	.000700	.....	.....	
11,600	58,000	.009900	.000950	.....	.....	
11,800	59,000	.010700	.000800	.....	.....	
12,000	60,000	.011250	.000550	.....	.....	
12,400	62,000	.013000	.001750	.....	.....	
12,800	64,000	.015100	.002100	.....	.....	
13,200	66,000	.017050	.001950	.....	.....	
13,600	68,000	.018750	.001700	.....	.....	
14,000	70,000	.021150	.002400			Tensile strength.
14,400	72,000	.023250	.002100	.....	.....	
14,800	74,000	.025650	.002400	.....	.....	
15,200	76,000	.028700	.003050	.....	.....	
15,600	78,000	.031250	.002550	.....	.....	
16,000	80,000	.034750	.003500	.....	.....	
16,400	82,000	.038250	.003500	.....	.....	
16,800	84,000	.043050	.004800	.....	.....	
17,200	86,000	.048250	.005200	.....	.....	
17,600	88,000	.054000	.005750	.....	.....	
18,000	90,000	.0650	.0110	.....	.....	
18,400	92,000	.0750	.0100	.....	.....	
18,800	94,000	.0950	.0200	.....	.....	
19,160	95,800	.1450	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	95,800
Elastic limit per square inch of original section	do....	55,000
Elongation per inch after rupture	inch..	0.2500
Elongation per inch under strain at elastic limit	do....	.001850
Reduction in diameter at point of rupture	do....	.145
Reduction in area after rupture, per centum of original section		49.1
Position of rupture	".05 from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".28, ".22	

No. 2263.

Marks, $\frac{32}{B} \frac{J}{T} \frac{M}{5}$
Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001150	.000200	0.	.....	
8,000	40,000	.001350	.000200	0.	.....	
9,000	45,000	.001550	.000200	0.	.....	
10,000	50,000	.001750	.000200	0.	.....	
10,200	51,000	.001800	.000050	.....	.....	
10,400	52,000	.001850	.000050	.....	.....	
10,600	53,000	.001900	.000050	.....	.....	
10,800	54,000	.002000	.000100	.....	.....	
11,000	55,000	.002050	.000050	.....	.....	
11,200	56,000	.002100	.000050	.....	.....	
11,400	57,000	.002400	0.	.....	.....	
11,600	58,000	.002200	.000100	.....	.....	
11,800	59,000	.002250	.000050	.....	.....	
12,000	60,000	.002250	0.			Elastic limit.
12,200	61,000	.002400	.000150	.....	.....	
12,400	62,000	.009000	.006600	.....	.....	
12,600	63,000	.009550	.000550	.....	.....	
12,800	64,000	.010250	.000700	.....	.....	
13,000	65,000	.011100	.000850	.....	.....	
13,200	66,000	.012000	.000900	.....	.....	
13,400	67,000	.012850	.000850	.....	.....	
13,600	68,000	.013600	.000750	.....	.....	
13,800	69,000	.014550	.000950	.....	.....	
14,000	70,000	.015500	.000950	.....	.....	
14,400	72,000	.017150	.001650	.....	.....	
14,800	74,000	.019150	.002000	.....	.....	
15,200	76,000	.021150	.002000	.....	.....	
15,600	78,000	.023150	.002000	.....	.....	
16,000	80,000	.025300	.002150	.....	.....	
16,400	82,000	.028250	.002950	.....	.....	
16,800	84,000	.031150	.002900	.....	.....	
17,200	86,000	.034500	.003350	.....	.....	
17,600	88,000	.037250	.002750	.....	.....	
18,000	90,000	.042000	.004750	.....	.....	
18,400	92,000	.046050	.004050	.....	.....	
18,800	94,000	.052000	.005950	.....	.....	
19,200	96,000	.0600	.0080	.....	.....	
19,600	98,000	.0650	.0050	.....	.....	
20,000	100,000	.0850	.0200	.....	.....	
20,330	101,650	.1400	.0550			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	101,650
Elastic limit per square inch of original section.....	do.....	60,000
Elongation per inch after rupture.....	inch..	.02050
Elongation per inch under strain at elastic limit.....	do.....	.002250
Reduction in diameter at point of rupture.....	do.....	.075
Reduction in area after rupture, per centum of original section.....		27.4
Position of rupture.....	".95 from neck	
Character of broken surface.....	granular; radiating from a dull spot at circumference	
Elongation of inch sections.....	".19*, ".22*	

No. 633.

Marks, $\frac{32}{B} \frac{J_5}{T_6} \frac{M}{M}$

Length, 4".505.

Diameter, ".799.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.*	Inch.	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000200	.000200	0.	.....	
5,000	10,000	.000400	.000200	0.	.....	
7,500	15,000	.000567	.000167	0.	.....	
10,000	20,000	.000733	.000168	0.	.....	
12,500	25,000	.000900	.000167	0.	.....	
15,000	30,000	.001067	.000167	0.	.....	
17,500	35,000	.001267	.000200	0.	.....	
20,000	40,000	.001433	.000166	0.	.....	
22,500	45,000	.001600	.000167	0.	.....	
23,000	46,000	.001633	.000033	.....	.....	
23,500	47,000	.001667	.000034	.....	.....	
24,000	48,000	.001700	.000033	.....	.....	
24,500	49,000	.001767	.000067	.....	.....	
25,000	50,000	.001800	.000033	0.	.....	
25,500	51,000	.001833	.000033	.....	.....	
26,000	52,000	.001933	.000100	.....	.....	
26,500	53,000	.001967	.000034	.....	.....	
27,000	54,000	.002 00	.000033	.....	.....	
27,500	55,000	.002100	.000100	.000033	.000033	Elastic limit.
28,000	56,000	.002233	.000133	.....	.....	
28,500	57,000	.002633	.000400	.....	.....	
29,000	58,000	.007500	.004867	.....	.....	
29,500	59,000	.008133	.000633	.....	.....	
30,000	60,000	.008333	.000200			Ultimate strength.
50,000	100,000	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 55,000
 Compression per inch under stress at elastic limit.....inch.. 0.002100
 Ultimate strength per square inch of original section.....pounds.. 100,000
 Manner of failure.....triple flexure

Marks, $M T_1 M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000500	.000100	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000800	.000150	0.	.....	
7,000	35,000	.000950	.000150	0.	.....	
8,000	40,000	.001100	.000150	0.	.....	
9,000	45,000	.001200	.000100	.....	.....	
9,200	46,000	.001250	.000050			Elastic limit.
9,400	47,000	.001350	.000100	.....	.....	
9,600	48,000	.001400	.000050	.....	.....	
9,800	49,000	.001550	.000150	.....	.....	
10,000	50,000	.001750	.000200	.000250	.000250	
10,200	51,000	.002150	.000400	.....	.....	
10,400	52,000	.002700	.000515	.....	.....	
10,600	53,000	.003350	.000650	.....	.....	
10,800	54,000	.004050	.000700	.....	.....	
11,000	55,000	.005200	.001150	.003200	.002950	
11,200	56,000	.006200	.001000			
11,400	57,000	.006700	.000500	.....	.....	
11,600	58,000	.007350	.000650	.....	.....	
11,800	59,000	.008400	.001050	.....	.....	
12,000	60,000	.009400	.001600	.007350	.004150	
12,400	62,000	.011350	.001950	.....	.....	
12,800	64,000	.013200	.001850	.....	.....	
13,200	66,000	.015350	.002150	.....	.....	
13,600	68,000	.018400	.003050	.....	.....	
14,000	70,000	.019500	.001100	.....	.....	
14,400	72,000	.022000	.002500			
14,800	74,000	.024500	.002500	.....	.....	
15,200	76,000	.027500	.003000	.....	.....	
15,600	78,000	.030250	.002750	.....	.....	
16,000	80,000	.033750	.003500	.....	.....	
16,400	82,000	.038000	.004250	.....	.....	
16,800	84,000	.042450	.004450	.....	.....	
17,200	86,000	.046900	.004450	.....	.....	
17,600	88,000	.053000	.006100	.....	.....	
18,000	90,000	.064550	.011550			Tensile strength.
18,400	92,000	.0750	.010450	.....	.....	
18,890	94,450	.1200	.0450	.....	.....	

General summary.

Specific gravity	7.8593
Tensile strength per square inch of original section.....	pounds.. 94,450
Elastic limit per square inch of original section	do... 48,000
Elongation per inch after rupture	inch.. 0.2100
Elongation per inch under strain at elastic limit	do... .001400
Reduction in diameter at point of rupture	do... .125
Reduction in area after rupture, per centum of original section	43.3
Position of rupture.....	at middle of stem
Character of broken surface.....	silky
Elongation of inch sections.....	".22*, ".20*

No. 1102.

Marks, $M \frac{32}{T_2} M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001500	.000200	0.	.....	
9,200	46,000	.001550	.000050	.....	.....	
9,400	47,000	.001600	.000050	.....	.....	
9,600	48,000	.001700	.000100	.....	.....	Elastic limit.
9,800	49,000	.001950	.000250	.....	.....	
10,000	50,000	.002600	.000650	.000850	.000850	
10,200	51,000	.003100	.000500	.....	.....	
10,400	52,000	.003900	.000800	.....	.....	
10,600	53,000	.004250	.000350	.....	.....	
10,800	54,000	.005100	.000850	.....	.....	
11,000	55,000	.006550	.001450	.004450	.003600	
11,200	56,000	.006900	.000350	.....	.....	
11,400	57,000	.007300	.000400	.....	.....	
11,600	58,000	.008250	.000350	.....	.....	
11,800	59,000	.009550	.001300	.....	.....	
12,000	60,000	.010250	.000700	.007900	.003450	
12,400	62,000	.012750	.002500	.....	.....	
12,800	64,000	.014250	.001500	.....	.....	
13,200	66,000	.015600	.001350	.....	.....	
13,600	68,000	.018000	.002400	.....	.....	
14,000	70,000	.021600	.003600	.....	.....	
14,400	72,000	.022750	.001150	.....	.....	
14,800	74,000	.025000	.002250	.....	.....	
15,200	76,000	.028000	.003000	.....	.....	
15,600	78,000	.031150	.003150	.....	.....	
16,000	80,000	.034500	.003350	.....	.....	
16,400	82,000	.037900	.003400	.....	.....	
16,800	84,000	.042000	.004100	.....	.....	
17,200	86,000	.048000	.006000	.....	.....	
17,600	88,000	.053750	.005750	.....	.....	
18,000	90,000	.062550	.008800	.....	.....	
18,400	92,000	.0750	.002450	.....	.....	
18,950	94,750	.1450	.0700	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	94,750
Elastic limit per square inch of original section.....	do....	48,000
Elongation per inch after rupture.....	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do....	.001700
Reduction in diameter at point of rupture.....	do....	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....		".65 from neck
Character of broken surface.....		silky; interspersed with granular metal
Elongation of inch sections.....		".32* ".11

No. 537.

Marks, $\overset{32}{M} \overset{J_6}{T_3} M$

Length, 4'' .50.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000750	.000200	0.	.....	
15,000	30,000	.000900	.000150	0.	.....	
17,500	35,000	.001050	.000150	0.	.....	
20,000	40,000	.001200	.000150	0.	.....	
22,500	45,000	.001350	.000150	0.	.....	
25,000	50,000	.001500	.000150			Elastic limit.
25,500	51,000	.001600	.000100	.....	.....	
26,000	52,000	.001900	.000300	.....	.....	
26,500	53,000	.002350	.000450	.....	.....	
27,000	54,000	.003100	.000750	.....	.....	
27,500	55,000	.003600	.000500	.001800	.001800	
28,000	56,000	.004300	.000700	.....	.....	
28,500	57,000	.004800	.000500	.....	.....	
29,000	58,000	.005800	.001000	.....	.....	
29,500	59,000	.006550	.000750	.....	.....	
30,000	60,000	.007300	.000750	.005350	.003550	Ultimate strength.
47,600	95,200	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 50,000
 Compression per inch under stress at elastic limit inch.. 0.001500
 Ultimate strength per square inch of original section pounds.. 95,200
 Manner of failure triple flexure

No. 1110.

Marks, $^{32}J_7$
M T₁ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000200	.000100	0.	-----	
3,000	15,000	.000400	.000200	0.	-----	
4,000	20,000	.000600	.000200	0.	-----	
5,000	25,000	.000800	.000200	0.	-----	
6,000	30,000	.001000	.000200	0.	-----	
7,000	35,000	.001150	.000150	0.	-----	
8,000	40,000	.001400	.000250	0.	-----	
9,000	45,000	.001550	.000150	-----	-----	Elastic limit.
9,200	46,000	.001650	.000100	-----	-----	
9,400	47,000	.002000	.000350	-----	-----	
9,600	48,000	.002800	.000800	-----	-----	
9,800	49,000	.003350	.000550	-----	-----	
10,000	50,000	.003850	.000500	.001950	.001950	
10,200	51,000	.004350	.000500	-----	-----	
10,400	52,000	.005150	.000800	-----	-----	
10,600	53,000	.005750	.000600	-----	-----	
10,800	54,000	.007000	.001250	-----	-----	
11,000	55,000	.007750	.000750	.005700	.003750	
11,200	56,000	.008550	.000800	-----	-----	
11,400	57,000	.009100	.000550	-----	-----	
11,600	58,000	.009600	.000500	-----	-----	
11,800	59,000	.010700	.001100	-----	-----	
12,000	60,000	.011850	.001150	.009600	.003900	
12,400	62,000	.013650	.001800	-----	-----	
12,800	64,000	.015300	.001650	-----	-----	
13,200	66,000	.017500	.002200	-----	-----	
13,600	68,000	.019900	.002400	-----	-----	
14,000	70,000	.022250	.002350	-----	-----	
14,400	72,000	.024900	.002650	-----	-----	
14,800	74,000	.027250	.002350	-----	-----	
15,200	76,000	.029700	.002450	-----	-----	
15,600	78,000	.033000	.003300	-----	-----	
16,000	80,000	.036200	.003200	-----	-----	
16,400	82,000	.041150	.004950	-----	-----	
16,800	84,000	.046750	.005600	-----	-----	
17,200	86,000	.053000	.006250	-----	-----	
17,600	88,000	.0600	.0070	-----	-----	Tensile strength.
18,000	90,000	.0700	.0100	-----	-----	
18,400	92,000	.0950	.0250	-----	-----	
18,610	93,050	.1300	.0350	-----	-----	

General summary.

Specific gravity.....	7.8671
Tensile strength per square inch of original section.....pounds..	93,050
Elastic limit per square inch of original section.....do..	46,000
Elongation per inch after rupture.....inch..	0.2150
Elongation per inch under strain at elastic limit.....do....	.001650
Reduction in diameter at point of rupture.....do....	.125
Reduction in area after rupture, per centum of original section.....	43.3
Position of rupture.....	".45 from middle of stem
Character of broken surface.....	silky
Elongation of inch sections.....	".34*, ".09

No. 1111.

Marks, $^{32}J_7$
M T₂ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000200	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000700	.000200	0.	.....	
5,000	25,000	.000900	.000200	0.	.....	
6,000	30,000	.001100	.000200	0.	.....	
7,000	35,000	.001250	.000150	.000050	.000050	
8,000	40,000	.001450	.000200	.000100	.000050	
8,200	41,000	.001500	.000050	.....	.....	
8,400	42,000	.001550	.000050			Elastic limit.
8,600	43,000	.001600	.000050	.....	.....	
8,800	44,000	.001650	.000050	.....	.....	
9,000	45,000	.001750	.000100	.000150	.000050	
9,200	46,000	.002000	.000250	.....	.....	
9,400	47,000	.002450	.000450	.....	.....	
9,600	48,000	.003100	.000650	.....	.....	
9,800	49,000	.003750	.000650	.....	.....	
10,000	50,000	.004500	.000750	.002700	.002550	
10,200	51,000	.005400	.000900	.....	.....	
10,400	52,000	.006300	.000900			
10,600	53,000	.006800	.000500	.....	.....	
10,800	54,000	.007700	.000900	.....	.....	
11,000	55,000	.008800	.001100	.006700	.004000	
11,200	56,000	.009250	.000450	.....	.....	
11,400	57,000	.010500	.001250	.....	.....	
11,600	58,000	.011950	.001450	.....	.....	
11,800	59,000	.012500	.000550	.....	.....	
12,000	60,000	.013800	.001300	.011400	.004700	
12,400	62,000	.015300	.001500	.....	.....	
12,800	64,000	.017700	.002400			
13,200	66,000	.020500	.002800	.....	.....	
13,600	68,000	.022950	.002450	.....	.....	
14,000	70,000	.025400	.002450	.....	.....	
14,400	72,000	.028000	.002600	.....	.....	
14,800	74,000	.036250	.008250	.....	.....	
15,200	76,000	.037950	.001700	.....	.....	
15,600	78,000	.039000	.001050	.....	.....	
16,000	80,000	.043050	.004050	.....	.....	
16,400	82,000	.050600	.007550			Tensile strength.
16,800	84,000	.0550	.0044	.....	.....	
17,200	86,000	.0600	.0050	.....	.....	
17,600	88,000	.0750	.0150	.....	.....	
18,000	90,000	.1000	.0250	.....	.....	
18,100	90,500	.1600	.0600			

General summary.

Tensile strength per square inch of original section.....	pounds..	90,500
Elastic limit per square inch of original section.....	do....	45,000
Elongation per inch after rupture.....	inch..	0.2350
Elongation per inch under strain at elastic limit.....	do....	.001750
Reduction in diameter at point of rupture.....	do....	.085
Reduction in area after rupture, per centum of original section.....		30.7
Position of rupture.....	$\frac{3}{8}$ inch from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".29*, ".18	

No. 541.

Marks, $\frac{32}{M T_3 M} J_7$

Length, 4'' .49.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	-----	
5,000	10,000	.000300	.000150	0.	-----	
7,500	15,000	.000500	.000200	0.	-----	
10,000	20,000	.000650	.000150	0.	-----	
12,500	25,000	.000800	.000150	0.	-----	
15,000	30,000	.001000	.000200	0.	-----	
17,500	35,000	.001150	.000150	0.	-----	
20,000	40,000	.001350	.000200	0.	-----	
22,500	45,000	.001550	.000200	0.	-----	
24,000	48,000	.001600	.000050	-----	-----	
24,500	49,000	.002500	.000900	-----	-----	Elastic limit.
25,000	50,000	.003550	.001050	.001900	.001900	
25,500	51,000	.004800	.001250	-----	-----	
26,000	52,000	.005800	.001000	-----	-----	
26,500	53,000	.007050	.001250	-----	-----	
27,000	54,000	.008150	.001100	-----	-----	
27,500	55,000	.009350	.001200	-----	-----	Ultimate strength.
46,100	96,200	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section pounds.. 48,000
 Compression per inch under stress at elastic limit..... inch.. 0.001600
 Ultimate strength per square inch of original section pounds.. 96,200
 Manner of failure triple flexure

[Additional specimens.]

No. 2221.

Marks, $^{32}J_7$
 $^B T_4 M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001200	.000200	0.	.....	
9,000	45,000	.001400	.000200	0.	.....	
9,200	46,000	.001450	.000050			Elastic limit.
9,400	47,000	.001500	.000050	.....	.....	
9,600	48,000	.001800	.000300	.....	.....	
9,800	49,000	.003850	.002050	.....	.....	
10,000	50,000	.004200	.000350	.....	.....	
10,200	51,000	.005000	.000800	.....	.....	
10,400	52,000	.005700	.000700	.....	.....	
10,600	53,000	.006450	.000750	.....	.....	
10,800	54,000	.007350	.000900	.....	.....	
11,000	55,000	.008200	.000850	.....	.....	
11,200	56,000	.008900	.000700			
11,400	57,000	.009750	.000850	.....	.....	
11,600	58,000	.010350	.000600	.....	.....	
11,800	59,000	.011000	.000650	.....	.....	
12,000	60,000	.012000	.001000	.....	.....	
12,400	62,000	.013900	.001900	.....	.....	
12,800	64,000	.015750	.001850	.....	.....	
13,200	66,000	.018050	.002300	.....	.....	
13,600	68,000	.020250	.002200	.....	.....	
14,000	70,000	.022550	.002000	.....	.....	
14,400	72,000	.025150	.002600			
14,800	74,000	.028000	.002850	.....	.....	
15,200	76,000	.030600	.002600	.....	.....	
15,600	78,000	.033150	.002550	.....	.....	
16,000	80,000	.036700	.003550	.....	.....	
16,400	82,000	.040600	.003900	.....	.....	
16,800	84,000	.045800	.005200	.....	.....	
17,200	86,000	.051250	.005450	.....	.....	
17,600	88,000	.059150	.007900	.....	.....	
18,000	90,000	.068000	.008850			Tensile strength.
18,400	92,000	.0900	.0220	.....	.....	
18,690	93,450	.1150	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	93,450
Elastic limit per square inch of original section	do....	47,000
Elongation per inch after rupture	inch..	0.2150
Elongation per inch under strain at elastic limit	do....	.001500
Reduction in diameter at point of rupture	do....	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	".1 from middle of stem	
Character of broken surface	silky; interspersed with fine granulation	
Elongation of inch sections	".26*, ".17	

No. 2222.

Marks, $\frac{32}{B} \frac{5}{T} \frac{M}{M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch,	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000900	.000250	0.	.....	
6,000	30,000	.001100	.000200	0.	.....	
7,000	35,000	.001250	.000150	0.	.....	
8,000	40,000	.001400	.000150	0.	.....	
9,000	45,000	.001550	.000150	0.	.....	
9,200	46,000	.001600	.000050	.....	.....	
9,400	47,000	.001650	.000050	.....	.....	
9,600	48,000	.001700	.000050	.....	.....	Elastic limit.
9,800	49,000	.002050	.000350	.....	.....	
10,000	50,000	.003050	.001000	.....	.....	
10,200	51,000	.003950	.000900	.....	.....	
10,400	52,000	.004450	.000500	.....	.....	
10,600	53,000	.005100	.000650	.....	.....	
10,800	54,000	.005850	.000750	.....	.....	
11,000	55,000	.006600	.000750	.....	.....	
11,200	56,000	.007450	.000850	.....	.....	
11,400	57,000	.008100	.000650	.....	.....	
11,600	58,000	.009000	.000900	.....	.....	
11,800	59,000	.009750	.000750	.....	.....	
12,000	60,000	.010450	.000700	.....	.....	
12,400	62,000	.012100	.001650	.....	.....	
12,800	64,000	.014000	.001900	.....	.....	
13,200	66,000	.015750	.001750	.....	.....	
13,600	68,000	.018000	.002250	.....	.....	
14,000	70,000	.020150	.002150	.....	.....	
14,400	72,000	.022300	.002150	.....	.....	
14,800	74,000	.024650	.002350	.....	.....	
15,200	76,000	.027250	.002600	.....	.....	
15,600	78,000	.029750	.002500	.....	.....	
16,000	80,000	.032700	.002950	.....	.....	
16,400	82,000	.036200	.003500	.....	.....	
16,800	84,000	.040000	.003800	.....	.....	
17,200	86,000	.044350	.004350	.....	.....	
17,600	88,000	.050000	.005750	.....	.....	
18,000	90,000	.057150	.007150	.....	.....	
18,400	92,000	.066500	.009350	.....	.....	
18,800	94,000	.0850	.0185	.....	.....	
19,160	95,800	.1200	.0350	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	95,800
Elastic limit per square inch of original section.....	do....	48,000
Elongation per inch after rupture.....	inch....	0.1500
Elongation per inch under strain at elastic limit.....	do....	.001700
Reduction in diameter at point of rupture.....	do....	.055
Reduction in area after rupture, per centum of original section.....		20.5
Position of rupture.....		".65 from neck
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections.....		".10, ".20*

No. 2223.

Marks, $\frac{32}{B} \frac{J_7}{T_6} M$

Diameter, .505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.010150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000750	.000250	0.	.....	
5,000	25,000	.001000	.000250	0.	.....	
6,000	30,000	.001200	.000200	0.	.....	
7,000	35,000	.001450	.000250	0.	.....	
8,000	40,000	.001600	.000150	.000050	.000050	
9,000	45,000	.001900	.000300	.000050	0.	Elastic limit.
9,200	46,000	.002000	.000100	.....	.....	
9,400	47,000	.002450	.000450	.....	.....	
9,600	48,000	.003700	.001250	.....	.....	
9,800	49,000	.004350	.000650	.....	.....	
10,000	50,000	.005150	.000800	.....	.....	
10,200	51,000	.005700	.000550	.....	.....	
10,400	52,000	.006450	.000750	.....	.....	
10,600	53,000	.007200	.000750	.....	.....	
10,800	54,000	.008000	.000800	.....	.....	
11,000	55,000	.008750	.000750			
11,200	56,000	.009600	.000850	.....	.....	
11,400	57,000	.010300	.000700	.....	.....	
11,600	58,000	.011300	.000100	.....	.....	
11,800	59,000	.012100	.000800	.....	.....	
12,000	60,000	.013000	.000900	.....	.....	
12,400	62,000	.015000	.002000	.....	.....	
12,800	64,000	.016750	.001750	.....	.....	
13,200	66,000	.018750	.002000	.....	.....	
13,600	68,000	.021000	.002250			
14,000	70,000	.023600	.002600	.....	.....	
14,400	72,000	.026100	.002500	.....	.....	
14,800	74,000	.028750	.002650	.....	.....	
15,200	76,000	.031550	.002800	.....	.....	
15,600	78,000	.034850	.003300	.....	.....	
16,000	80,000	.038250	.003400	.....	.....	
16,400	82,000	.042400	.004150	.....	.....	
16,800	84,000	.047000	.004600	.....	.....	
17,200	86,000	.053000	.006000			Tensile strength.
17,600	88,000	.0600	.0070	.....	.....	
18,000	90,000	.0700	.0100	.....	.....	
18,400	92,000	.0900	.0200	.....	.....	
18,770	93,850	.1400	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	93,800
Elastic limit per square inch of original section.....	do.....	46,000
Elongation per inch after rupture.....	inch.....	0.2000
Elongation per inch under strain at elastic limit.....	do.....	.002000
Reduction in diameter at point of rupture.....	do.....	.055
Reduction in area after rupture, per centum of original section.....		20.5
Position of rupture.....	".05 from middle of stem	
Character of broken surface.....	granular; dull spot at circumference	
Diameter $\frac{1}{4}$ inch from point of rupture.....		".43
Elongation of inch sections.....	".15, ".25*	

[Additional specimens.]

No. 2416.

Marks, $\frac{32}{B} \frac{J}{T} \frac{M}{4}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000750	.000200	0.	.....	
5,000	25,000	.001000	.000250	0.	.....	
6,000	30,000	.001150	.000150	0.	.....	
7,000	35,000	.001250	.000100	.....	.....	
8,000	40,000	.001450	.000200	.....	.....	
8,200	41,000	.001500	.000050	.....	.....	
8,400	42,000	.001550	.000050	.....	.....	
8,600	43,000	.001550	0.	.....	.....	
8,800	44,000	.001600	.000050	.....	.....	
9,000	45,000	.001650	.000050	.....	.....	
9,200	46,000	.001650	0.	.....	.....	
9,400	47,000	.001700	.000050	.....	.....	
9,600	48,000	.001750	.000050	.....	.....	
9,800	49,000	.001800	.000050			Elastic limit.
10,000	50,000	.002100	.000300	.....	.....	
10,200	51,000	.003000	.000900	.....	.....	
10,400	52,000	.003450	.000450	.....	.....	
10,600	53,000	.004000	.000550	.....	.....	
10,800	54,000	.004750	.000750	.....	.....	
11,000	55,000	.005200	.000450	.....	.....	
11,200	56,000	.005700	.000500	.....	.....	
11,400	57,000	.006450	.000750	.....	.....	
11,600	58,000	.007050	.000600	.....	.....	
11,800	59,000	.007700	.000650	.....	.....	
12,000	60,000	.008500	.000800	.....	.....	
12,400	62,000	.010000	.001500	.....	.....	
12,800	64,000	.011600	.001600	.....	.....	
13,200	66,000	.013350	.001750	.....	.....	
13,600	68,000	.015200	.001850	.....	.....	
14,000	70,000	.017100	.001900	.....	.....	
14,400	72,000	.018650	.001550	.....	.....	
14,800	74,000	.020600	.001950	.....	.....	
15,200	76,000	.022850	.002250	.....	.....	
15,600	78,000	.024850	.002000	.....	.....	
16,000	80,000	.027600	.002750	.....	.....	
16,400	82,000	.030200	.002600	.....	.....	
16,800	84,000	.033100	.002900	.....	.....	
17,200	86,000	.036350	.003250	.....	.....	
17,600	88,000	.040000	.003650	.....	.....	
18,000	90,000	.044500	.004500	.....	.....	
18,400	92,000	.0500	.0055	.....	.....	
18,800	94,000	.0550	.0050	.....	.....	
19,200	96,000	.0600	.0050	.....	.....	
19,600	98,000	.0700	.0100	.....	.....	
20,000	100,000	.1000	.0300			Tensile strength.
20,200	101,000	.1200	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section.....pounds.. 101,000
 Elastic limit per square inch of original section.....do... 49,000
 Elongation per inch after rupture.....inch.. 0.1900
 Elongation per inch under strain at elastic limit.....do... .001800
 Reduction in diameter at point of rupture.....do... .095
 Reduction in area after rupture, per centum of original section..... 34.0
 Position of rupture.....".35 from neck
 Character of broken surfacegranular, 60 per centum; silky, 40 per centum
 Elongation of inch sections.....".26*, ".12

No. 2417.

Marks, ³²J,
B T₅ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000900	.000250	0.	.....	
6,000	30,000	.001050	.000150	0.	.....	
7,000	35,000	.001200	.000150	.....	.....	
8,000	40,000	.001300	.000100	.....	.....	
9,000	45,000	.001450	.000150	.....	.....	
9,200	46,000	.001500	.000050			Elastic limit.
9,400	47,000	.001550	.000050	.....	.....	
9,600	48,000	.001600	.000050	.....	.....	
9,800	49,000	.001650	.000050	.....	.....	
10,000	50,000	.001700	.000050	.....	.....	
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001800	.000050	.....	.....	
10,600	53,000	.002100	.000300	.....	.....	
10,800	54,000	.002500	.000400	.....	.....	
11,000	55,000	.002750	.000250	.....	.....	
11,200	56,000	.003100	.000350	.....	.....	
11,400	57,000	.003550	.000450	.....	.....	
11,600	58,000	.004000	.000450	.....	.....	
11,800	59,000	.004600	.000600	.....	.....	
12,000	60,000	.005350	.000750	.....	.....	
12,400	62,000	.006750	.001400	.....	.....	
12,800	64,000	.008000	.001250	.....	.....	
13,200	66,000	.009500	.001500	.....	.....	
13,600	68,000	.011250	.001750	.....	.....	
14,000	70,000	.012750	.001500	.....	.....	
14,400	72,000	.014500	.001750	.....	.....	
14,800	74,000	.015950	.001450	.....	.....	
15,200	76,000	.017950	.002000	.....	.....	
15,600	78,000	.019750	.001800	.....	.....	
16,000	80,000	.021600	.001850	.....	.....	
16,400	82,000	.024250	.002650	.....	.....	
16,800	84,000	.026350	.002100	.....	.....	
17,200	86,000	.028750	.002400	.....	.....	
17,600	88,000	.031450	.002700	.....	.....	
18,000	90,000	.034500	.003050	.....	.....	
18,400	92,000	.037700	.003200	.....	.....	
18,800	94,000	.041000	.003300	.....	.....	
19,200	96,000	.0450	.0040	.....	.....	
19,600	98,000	.0500	.0050	.....	.....	
20,000	100,000	.0550	.0050	.....	.....	
20,400	102,000	.0650	.0100	.....	.....	
20,800	104,000	.0850	.0200	.....	.....	
21,040	105,200	.1100	.0250			Tensile strength.

General summary.

Tensile strength per square inch of original section pounds.. 105,200
 Elastic limit per square inch of original section do... 52,000
 Elongation per inch after rupture inch.. 0.1550
 Elongation per inch under strain at elastic limit..... do... .001800
 Reduction in diameter at point of rupture..... do... .085
 Reduction in area after rupture, per centum of original section 30.7
 Position of rupture ".33 from neck
 Character of broken surface granular; dull center
 Elongation of inch sections ".22*, ".09

No. 651.

Marks, $\text{B T}_6 \text{M}$ J_7

Length, 4".508.

Diameter, ".798.

Sectional area, 50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000233	.000133	0.	.....	
7,500	15,000	.000367	.000134	0.	.....	
10,000	20,000	.000567	.000200	0.	.....	
12,500	25,000	.000733	.000166	0.	.....	
15,000	30,000	.000933	.000200	.000067	.000067	
17,500	35,000	.001167	.000234	.000100	.000033	
20,000	40,000	.001400	.000233	.000167	.000067	
20,500	41,000	.001433	.000033	.....	.....	
21,000	42,000	.001467	.000034	.....	.....	
21,500	43,000	.001533	.000066	.....	.....	
22,000	44,000	.001600	.000067	.....	.....	
22,500	45,000	.001667	.000067			Elastic limit.
23,000	46,000	.001767	.000100	.....	.....	
23,500	47,000	.001933	.000166	.....	.....	
24,000	48,000	.002100	.000167	.....	.....	
24,500	49,000	.002267	.000167			Rested under load 1 hour.
25,000	50,000	.002567	.000300	.....	.....	
25,500	51,000	.003133	.000566	.....	.....	
26,000	52,000	.003733	.000600	.....	.....	
26,500	53,000	.004733	.001000			Ultimate strength.
27,000	54,000	.005500	.000767	.....	.....	
46,400	92,800					

General summary.

Elastic limit per square inch of original section pounds.. 45,000
 Compression per inch under stress at elastic limit inch.. 0.001667
 Ultimate strength per square inch of original section pounds.. 92,800
 Manner of failure triple flexure

No. 1112.

Marks, ^{32 J_s}_{B T₁ M}
 Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	0.	.....	
8,000	40,000	.001250	.000200	0.	.....	
9,000	45,000	.001450	.000200	0.	.....	
9,200	46,000	.001550	.000100			Elastic limit.
9,400	47,000	.001900	.000350	.....	.....	
9,600	48,000	.004050	.002150	.....	.....	
9,800	49,000	.005100	.001050	.....	.....	
10,000	50,000	.005950	.000850	.004100	.004100	
10,200	51,000	.006350	.000400	.....	.....	
10,400	52,000	.006950	.000600	.....	.....	
10,600	53,000	.007800	.000850	.....	.....	
10,800	54,000	.008800	.001000	.....	.....	
11,000	55,000	.009750	.000950	.....	.....	
11,200	56,000	.010650	.000900			
11,400	57,000	.011750	.001100	.....	.....	
11,600	58,000	.012600	.000850	.....	.....	
11,800	59,000	.013300	.000700	.....	.....	
12,000	60,000	.014500	.001200	.....	.....	
12,400	62,000	.016250	.001750	.....	.....	
12,800	64,000	.018250	.002000	.....	.....	
13,200	66,000	.021250	.003000	.....	.....	
13,600	68,000	.023250	.002000	.....	.....	
14,000	70,000	.025700	.002450			
14,400	72,000	.028600	.002900	.....	.....	
14,800	74,000	.031700	.003100	.....	.....	
15,200	76,000	.035500	.003800	.....	.....	
15,600	78,000	.039000	.003500	.....	.....	
16,000	80,000	.044750	.005750	.....	.....	
16,400	82,000	.050000	.005250	.....	.....	
16,800	84,000	.056250	.006250	.....	.....	
17,200	86,000	.0650	.008750	.....	.....	
17,600	88,000	.0750	.0100			Tensile strength.
18,000	90,000	.0950	.0200	.....	.....	
18,280	91,400	.1550	.0600	.....	.....	

General summary.

Specific gravity.....	7.8694
Tensile strength per square inch of original section..... pounds..	91,400
Elastic limit per square inch of original section..... do....	46,000
Elongation per inch after rupture..... inch..	0.2450
Elongation per inch under strain at elastic limit..... do....	.001550
Reduction in diameter at point of rupture..... do....	.105
Reduction in area after rupture, per centum of original section.....	37.1
Position of rupture.....	".1 from middle of stem
Character of broken surface.....	silky, 60 per centum; granular, 40 per centum
Elongation of inch sections.....	".26", ".23

No. 1113.

Marks, $\frac{32}{B} \frac{J_8}{T_2} M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	0.	.....	
2,000	10,000	.000100	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000450	.000150	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000750	.000150	0.	.....	
7,000	35,000	.000900	.000200	0.	.....	
8,000	40,000	.001150	.000150	0.		Elastic limit.
9,000	45,000	.001350	.000250	.000050	.000050	
9,200	46,000	.001550	.000150	.....	.....	
9,400	47,000	.001850	.000350	.....	.....	
9,600	48,000	.002500	.000700	.....	.....	
9,800	49,000	.003050	.000500	.....	.....	
10,000	50,000	.003600	.000550	.001950	.001900	
10,200	51,000	.004500	.000900	.....	.....	
10,400	52,000	.005250	.000750	.....	.....	
10,600	53,000	.006000	.000750	.....	.....	
10,800	54,000	.006500	.000500	.....	.....	
11,000	55,000	.007250	.000750	.....	.....	
11,200	56,000	.008100	.000850	.....	.....	
11,400	57,000	.009050	.000950	.....	.....	
11,600	58,000	.009900	.000850	.....	.....	
11,800	59,000	.010600	.000700	.....	.....	
12,000	60,000	.011700	.001100			Tensile strength.
12,400	62,000	.013350	.001650	.....	.....	
12,800	64,000	.015100	.001750	.....	.....	
13,200	66,000	.017100	.002000	.....	.....	
13,600	68,000	.019650	.002550	.....	.....	
14,000	70,000	.022050	.002400	.....	.....	
14,400	72,000	.024750	.002700	.....	.....	
14,800	74,000	.027500	.002750	.....	.....	
15,200	76,000	.030250	.002750	.....	.....	
15,600	78,000	.032700	.002450	.....	.....	
16,000	80,000	.036000	.003300	.....	.....	
16,400	82,000	.041050	.005050	.....	.....	
16,800	84,000	.045250	.004200	.....	.....	
17,200	86,000	.050300	.005050	.....	.....	
17,600	88,000	.057250	.006950	.....	.....	
18,000	90,000	.0650	.007750	.....	.....	
18,400	92,000	.0750	.0100	.....	.....	
18,800	94,000	.1150	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	94,000
Elastic limit per square inch of original section.....	do..	45,000
Elongation per inch after rupture.....	inch..	0.1750
Elongation per inch under strain at elastic limit.....	do..	.001350
Reduction in diameter at point of rupture.....	do..	.075
Reduction in area after rupture, per centum of original section.....		27.4
Position of rupture.....	"	.55 from neck
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections.....	"	.24*, .11

No. 554.

Marks, $\frac{32}{B} \frac{J}{T} \frac{8}{M}$

Length, 4' .5.

Diameter, ' .798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	— .000050	— .000050	
5,000	10,000	.000200	.000100	— .000050	0.	
7,500	15,000	.000300	.000100	— .000050	0	
10,000	20,000	.000450	.000150	— .000100	— .000050	
12,500	25,000	.000600	.000150	— .000100	0.	
15,000	30,000	.000800	.000200	— .000100	0.	
17,500	35,000	.001000	.000200	— .000100	0.	
20,000	40,000	.001150	.000150	— .000100	0.	
20,500	41,000	.001200	.000050	.....	.....	
21,000	42,000	.001300	.000100			Elastic limit.
21,500	43,000	.001500	.000200	.....	.....	
22,000	44,000	.002700	.001200	.....	.....	
22,500	45,000	.003050	.000350	.001500	.001600	
23,000	46,000	.003800	.000750	.....	.....	
23,500	47,000	.004750	.000950	.....	.....	
24,000	48,000	.005450	.000700	.....	.....	
24,500	49,000	.006450	.001000	.....	.....	
25,000	50,000	.007200	.000750	.005350	.003850	
25,500	51,000	.007750	.000550	.....	.....	
26,000	52,000	.008950	.001200	.....	.....	
26,500	53,000	.009550	.000600	.....	.....	
27,000	54,000	.010500	.000950	.....	.....	
27,500	55,000	.011500	.001000	.009400	.004050	
28,000	56,000	.012050	.000550	.....	.....	
28,500	57,000	.013000	.000950	.....	.....	
29,000	58,000	.013800	.000800	.....	.....	
29,500	59,000	.015000	.001200	.....	.....	
30,000	60,000	.016050	.001050	.013750	.004350	Ultimate strength.
44,500	89,000	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 42,000
 Compression per inch under stress at elastic limit..... inch.. 0.001300
 Ultimate strength per square inch of original section..... pounds.. 89,000
 Manner of failure..... triple flexure

[Additional specimens.]

No. 2215.

Marks, $M \begin{smallmatrix} 32 J_8 \\ T_4 M \end{smallmatrix}$
 Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001200	.000250	0.	.....	
8,000	40,000	.001400	.000200	0.	.....	
9,000	45,000	.001550	.000150	.....	.....	
9,200	46,000	.001600	.000050	.....	.....	
9,400	47,000	.001650	.000050	.....	.....	
9,600	48,000	.001750	.000100	.....	.....	Elastic limit.
9,800	49,000	.003050	.001300	.....	.....	
10,000	50,000	.003900	.000850	.....	.....	
10,200	51,000	.004450	.000550	.....	.....	
10,400	52,000	.005150	.000700	.....	.....	
10,600	53,000	.005850	.000700	.....	.....	
10,800	54,000	.006650	.000800	.....	.....	
11,000	55,000	.007300	.000650	.....	.....	
11,200	56,000	.008100	.000800	.....	.....	
11,400	57,000	.008850	.000750	.....	.....	
11,600	58,000	.009550	.000700	.....	.....	
11,800	59,000	.010250	.000700	.....	.....	
12,000	60,000	.011000	.000750	.....	.....	
12,400	62,000	.012700	.001700	.....	.....	
12,800	64,000	.014350	.001650	.....	.....	
13,200	66,000	.016300	.001950	.....	.....	
13,600	68,000	.018500	.002200	.....	.....	
14,000	70,000	.020600	.002100	.....	.....	
14,400	72,000	.023000	.002400	.....	.....	
14,800	74,000	.025350	.002350	.....	.....	
15,200	76,000	.027700	.002350	.....	.....	
15,600	78,000	.030200	.002500	.....	.....	
16,000	80,000	.033100	.002900	.....	.....	
16,400	82,000	.036750	.003650	.....	.....	
16,800	84,000	.040150	.003400	.....	.....	
17,200	86,000	.045000	.004850	.....	.....	
17,600	88,000	.049850	.004850	.....	.....	
18,000	90,000	.057000	.007150	.....	.....	
18,400	92,000	.066000	.009000	.....	.....	
18,800	94,000	.0850	.0190	.....	.....	
19,200	96,000	.1150	.0300	.....	.....	
19,220	96,100	.1400	.0250	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	96,100
Elastic limit per square inch of original section	do...	48,000
Elongation per inch after rupture	inch..	0.2150
Elongation per inch under strain at elastic limit	do...	.001750
Reduction in diameter at point of rupture	do...	.095
Reduction in area after rupture, per centum of original section		34.0
Position of rupture	".85 from neck	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	".16, ".27 ^a	

No. 2216.

Marks, $\frac{32 J_s}{M T_s M}$
Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
8,600	43,000	.001450	.000100	.....	.....	
8,800	44,000	.001500	.000050	.....	.....	Elastic limit
9,000	45,000	.002850	.001350	.....	.....	
9,200	46,000	.003550	.000700	.....	.....	
9,400	47,000	.004250	.000700	.....	.....	
9,600	48,000	.005000	.000750	.....	.....	
9,800	49,000	.006000	.001000	.....	.....	
10,000	50,000	.006750	.000750	.....	.....	
10,200	51,000	.007500	.000750	.....	.....	
10,400	52,000	.008100	.000600	.....	.....	
10,600	53,000	.008900	.000700	.....	.....	
10,800	54,000	.009750	.000850	.....	.....	
11,000	55,000	.010500	.000750	.....	.....	
11,200	56,000	.011550	.001050	.....	.....	
11,400	57,000	.012200	.000650	.....	.....	
11,600	58,000	.013200	.001000	.....	.....	
11,800	59,000	.014200	.001000	.....	.....	
12,000	60,000	.015000	.000800	.....	.....	
12,400	62,000	.017350	.002350	.....	.....	
12,800	64,000	.019500	.002150	.....	.....	
13,200	66,000	.021700	.002200	.....	.....	
13,600	68,000	.024200	.002500	.....	.....	
14,000	70,000	.026750	.002550	.....	.....	
14,400	72,000	.029550	.002800	.....	.....	
14,800	74,000	.032250	.002700	.....	.....	
15,200	76,000	.035750	.003500	.....	.....	
15,600	78,000	.039750	.004000	.....	.....	
16,000	80,000	.044050	.004300	.....	.....	
16,400	82,000	.050000	.005950	.....	.....	
16,800	84,000	.056500	.006500	.....	.....	
17,200	86,000	.0650	.0085	.....	.....	
17,600	88,000	.0800	.0150	.....	.....	
18,000	90,000	.1000	.0200	.....	.....	
18,070	90,350	.1200	.0200	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....pounds.. 90,350
 Elastic limit per square inch of original section.....do... 44,000
 Elongation per inch after rupture.....inch.. 0.1350
 Elongation per inch under strain at elastic limit.....do... .001500
 Reduction in diameter at point of rupture.....do... .045
 Reduction in area after rupture, per centum of original section..... 16.9
 Position of rupture.....".53 from neck
 Character of broken surface.....granular; dull spot at circumference
 Elongation of inch sections.....".15*, ".12

No. 2217.

Marks, $\frac{32}{8} J_s$ $\frac{MT_6}{M}$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000700	.000200	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001350	.000200	0.	.....	
9,000	45,000	.001550	.000200	0.	.....	
9,200	46,000	.001550	0.	.....	.....	
9,400	47,000	.001650	.000100			Elastic limit.
9,600	48,000	.002100	.000450	.....	.....	
9,800	49,000	.003000	.000900	.....	.....	
10,000	50,000	.004000	.001000	.....	.....	
10,200	51,000	.005000	.001000	.....	.....	
10,400	52,000	.005900	.000900	.....	.....	
10,600	53,000	.006500	.000600	.....	.....	
10,800	54,000	.007200	.000700	.....	.....	
11,000	55,000	.008150	.000950	.....	.....	
11,200	56,000	.008900	.000750	.....	.....	
11,400	57,000	.009650	.000750	.....	.....	
11,600	58,000	.010400	.000750	.....	.....	
11,800	59,000	.011250	.000850	.....	.....	
12,000	60,000	.012050	.000800	.....	.....	
12,400	62,000	.013800	.001750	.....	.....	
12,800	64,000	.015750	.001950	.....	.....	
13,200	66,000	.017700	.001950	.....	.....	
13,600	68,000	.020000	.002300	.....	.....	
14,000	70,000	.022400	.002400	.....	.....	
14,400	72,000	.024600	.002200	.....	.....	
14,800	74,000	.027250	.002650	.....	.....	
15,200	76,000	.029650	.002400	.....	.....	
15,600	78,000	.033000	.003350	.....	.....	
16,000	80,000	.036050	.003050	.....	.....	
16,400	82,000	.039750	.003700	.....	.....	
16,800	84,000	.044000	.004250	.....	.....	
17,200	86,000	.046800	.002800	.....	.....	
17,600	88,000	.056050	.009250	.....	.....	
18,000	90,000	.0650	.008950	.....	.....	
18,400	92,000	.0800	.0150	.....	.....	
18,660	93,300	.1150	.0350			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	93,300
Elastic limit per square inch of original section.....	do...	47,000
Elongation per inch after rupture.....	inch..	0.1800
Elongation per inch under strain at elastic limit.....	do...	.001650
Reduction in diameter at point of rupture.....	do...	.075
Reduction in area after rupture, per centum of original section.....		27.4
Position of rupture.....	$\frac{1}{4}$ inch from neck	
Character of broken surface.....	granular; dull spot at circumference	
Minimum diameter $\frac{1}{4}$ inch from point of rupture.....		".42
Elongation of inch sections.....		".27*, ".09

NEW JACKET, No. 8.

No. 2547.

Marks, $\overset{32}{M} \overset{J_8}{T_7}$
 Diameter, $\overset{11}{\prime}$.505.
 Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000800	.000100	0.	.....	
7,000	35,000	.000950	.000150	.....	.....	
8,000	40,000	.001100	.000150	.....	.....	
9,000	45,000	.001250	.000150	.....	.....	
9,200	46,000	.001300	.000050	.....	.....	
9,400	47,000	.001350	.000050	.....	.....	
9,600	48,000	.001400	.000050	.....	.....	
9,800	49,000	.001450	.000050	.....	.....	
10,000	50,000	.001500	.000050	.....	.....	
10,200	51,000	.001500	0.	.....	.....	
10,400	52,000	.001550	.000050	.....	.....	Elastic limit.
10,600	53,000	.001750	.000200	.....	.....	
10,800	54,000	.002250	.000500	.....	.....	
11,000	55,000	.002800	.000550	.....	.....	
11,200	56,000	.003400	.000600	.....	.....	
11,400	57,000	.003950	.000550	.....	.....	
11,600	58,000	.004800	.000850	.....	.....	
11,800	59,000	.005400	.000600	.....	.....	
12,000	60,000	.006100	.000700	.....	.....	
12,400	62,000	.007450	.001350	.....	.....	
12,800	64,000	.008850	.001400	.....	.....	
13,200	66,000	.010050	.001200	.....	.....	
13,600	68,000	.011900	.001850	.....	.....	
14,000	70,000	.013100	.001200	.....	.....	
14,400	72,000	.014950	.001850	.....	.....	
14,800	74,000	.016800	.001850	.....	.....	
15,200	76,000	.018750	.001950	.....	.....	
15,600	78,000	.020250	.001500	.....	.....	
16,000	80,000	.022000	.001750	.....	.....	
16,400	82,000	.024000	.002000	.....	.....	
16,800	84,000	.026150	.002150	.....	.....	
17,200	86,000	.028750	.002600	.....	.....	
17,600	88,000	.031100	.002350	.....	.....	
18,000	90,000	.034050	.002950	.....	.....	
18,400	92,000	.037550	.003500	.....	.....	
18,800	94,000	.041150	.003600	.....	.....	
19,200	96,000	.045900	.004750	.....	.....	
19,600	98,000	.050100	.004200	.....	.....	
20,000	100,000	.0600	.0099	.....	.....	
20,400	102,000	.0650	.0050	.....	.....	
20,800	104,000	.0800	.0150	.....	.....	
21,120	105,600	.1150	.0350	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section..... pounds.. 105,600
 Elastic limit per square inch of original section..... do... 52,000
 Elongation per inch after rupture..... inch.. 0.1850
 Elongation per inch under strain at elastic limit..... do... .001550
 Reduction in diameter at point of rupture..... do... .095
 Reduction in area after rupture, per centum of original section..... 34.0
 Position of rupture..... 1", 1 from neck
 Character of broken surface..... granular; dull center
 Elongation of inch sections..... ".21*, ".16

No. 2548.

Marks, $\frac{32}{MT_s} J_s$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000250	.000100	0.	-----	
3,000	15,000	.000400	.000150	0.	-----	
4,000	20,000	.000500	.000100	0.	-----	
5,000	25,000	.000650	.000150	0.	-----	
6,000	30,000	.000850	.000200	0.	-----	
7,000	35,000	.000950	.000100	-----	-----	
8,000	40,000	.001150	.000200	-----	-----	
9,000	45,000	.001350	.000200	-----	-----	
9,200	46,000	.001400	.000050	-----	-----	
9,400	47,000	.001500	.000100	-----	-----	
9,600	48,000	.001500	0.	-----	-----	
9,800	49,000	.001550	.000050	-----	-----	
10,000	50,000	.001600	.000050	-----	-----	
10,200	51,000	.001650	.000050	-----	-----	
10,400	52,000	.001700	.000050	-----	-----	
10,600	53,000	.001800	.000100	-----	-----	Elastic limit.
10,800	54,000	.002100	.000300	-----	-----	
11,000	55,000	.002350	.000250	-----	-----	
11,200	56,000	.002800	.000450	-----	-----	
11,400	57,000	.003300	.000500	-----	-----	
11,600	58,000	.003800	.000500	-----	-----	
11,800	59,000	.004750	.000950	-----	-----	
12,000	60,000	.005500	.000750	-----	-----	
12,400	62,000	.006500	.001000	-----	-----	
12,800	64,000	.007950	.001450	-----	-----	
13,200	66,000	.009100	.001150	-----	-----	
13,600	68,000	.010600	.001500	-----	-----	
14,000	70,000	.012000	.001400	-----	-----	
14,400	72,000	.013500	.001500	-----	-----	
14,800	74,000	.015000	.001500	-----	-----	
15,200	76,000	.016550	.001550	-----	-----	
15,600	78,000	.018500	.001950	-----	-----	
16,000	80,000	.020000	.001500	-----	-----	
16,400	82,000	.021800	.001800	-----	-----	
16,800	84,000	.023750	.001950	-----	-----	
17,200	86,000	.026000	.002250	-----	-----	
17,600	88,000	.028200	.002200	-----	-----	
18,000	90,000	.030300	.002100	-----	-----	
18,400	92,000	.033500	.003200	-----	-----	
18,800	94,000	.036250	.002750	-----	-----	
19,200	96,000	.039500	.003250	-----	-----	
19,600	98,000	.043500	.004000	-----	-----	
20,000	100,000	.048100	.004600	-----	-----	
20,400	102,000	.053750	.005650	-----	-----	
20,800	104,000	.0600	.006250	-----	-----	
21,200	106,000	.0700	.0100	-----	-----	
21,600	108,000	.0950	.0250	-----	-----	
21,610	108,050	-----	-----	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	108,050
Elastic limit per square inch of original section	do...	53,000
Elongation per inch after rupture	inch..	0.1000
Elongation per inch under strain at elastic limit	do...	.001800
Reduction in diameter at point of rupture	do...	.035
Reduction in area after rupture, per centum of original section		13.2
Position of rupture		".71 from neck
Character of broken surface	granular; radiating from a point in the circumference	
Elongation of inch sections		".09, ".11*

No. 660.

Marks, $\overset{32}{M} \overset{J_8}{T_9} M$

Length, 4.504.

Diameter, .798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000300	.000200	0.	.....	
7,500	15,000	.000467	.000167	0.	.....	
10,000	20,000	.000700	.000233	0.	.....	
12,500	25,000	.000900	.000200	0.	.....	
15,000	30,000	.001067	.000167	.000033	.000033	
17,500	35,000	.001267	.000200	.000067	.000034	
20,000	40,000	.001433	.000166	.....	.....	
20,500	41,000	.001467	.000034	.....	.....	
21,000	42,000	.001533	.000066	.....	.....	
21,500	43,000	.001567	.000034	.....	.....	
22,000	44,000	.001633	.000066	.....	.....	
22,500	45,000	.001667	.000034	.....	.....	
23,000	46,000	.001700	.000033	.....	.....	
23,500	47,000	.001733	.000033	.....	.....	
24,000	48,000	.001800	.000067	.....	.....	
24,500	49,000	.001833	.000033	.....	.....	
25,000	50,000	.001867	.000034	.....	.....	
25,500	51,000	.001933	.000066	.....	.....	
26,000	52,000	.002000	.000067			Elastic limit.
26,500	53,000	.002067	.000067	.....	.....	
27,000	54,000	.002267	.000200	.....	.....	
27,500	55,000	.002700	.000433	.....	.....	
28,000	56,000	.003400	.000700	.....	.....	
28,500	57,000	.004167	.000767			Ultimate strength.
29,000	58,000	.005033	.000866	.....	.....	
52,320	104,640	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 53,000
 Compression per inch under stress at elastic limit.....inch.. 0.002067
 Ultimate strength per square inch of original section.....pounds.. 104,640
 Manner of failuretriple flexure

[Additional specimens.]

No. 2720.

Marks, $^{32}J_8$
 $M T_{10} M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000900	.000250	0.	.....	
6,000	30,000	.001100	.000200	0.	.....	
7,000	35,000	.001300	.000200	0.	.....	
8,000	40,000	.001500	.000200	.000050	.000050	
9,000	45,000	.001700	.000200	.....	.....	
9,200	46,000	.001700	0.	.....	.....	
9,400	47,000	.001750	.000050	.....	.....	
9,600	48,000	.001800	.000050	.....	.....	
9,800	49,000	.001850	.000050	.....	.....	
10,000	50,000	.001950	.000100	.....	.....	
10,200	51,000	.002050	.000100	.....	.....	
10,400	52,000	.002100	.000050	.....	.....	Elastic limit.
10,600	53,000	.002200	.000100	.....	.....	
10,800	54,000	.002500	.000200	.....	.....	
11,000	55,000	.002850	.000350	.....	.....	
11,200	56,000	.003250	.000400	.....	.....	
11,400	57,000	.003900	.000650	.....	.....	
11,600	58,000	.004500	.000600	.....	.....	
11,800	59,000	.005200	.000700	.....	.....	
12,000	60,000	.005700	.000500	.....	.....	
12,400	62,000	.007500	.001800	.....	.....	
12,800	64,000	.008500	.001000	.....	.....	
13,200	66,000	.009650	.001150	.....	.....	
13,600	68,000	.011150	.001500	.....	.....	
14,000	70,000	.012750	.001600	.....	.....	
14,400	72,000	.014250	.001500	.....	.....	
14,800	74,000	.015600	.001350	.....	.....	
15,200	76,000	.017500	.001900	.....	.....	
15,600	78,000	.019000	.001500	.....	.....	
16,000	80,000	.020600	.001600	.....	.....	
16,400	82,000	.022500	.001900	.....	.....	
16,800	84,000	.024500	.002000	.....	.....	
17,200	86,000	.026750	.002250	.....	.....	
17,600	88,000	.029250	.002500	.....	.....	
18,000	90,000	.031750	.002500	.....	.....	
18,400	92,000	.034150	.002400	.....	.....	
18,800	94,000	.037300	.003150	.....	.....	
19,200	96,000	.040600	.003300	.....	.....	
19,600	98,000	.0450	.004400	.....	.....	
20,000	100,000	.0500	.0050	.....	.....	
20,400	102,000	.0525	.0025	.....	.....	
20,800	104,000	.0600	.0075	.....	.....	
21,200	106,000	.0750	.0150	.....	.....	
21,600	108,000	.1050	.0300	.....	.....	
21,620	108,100	.1200	.0150	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	108,100
Elastic limit per square inch of original section	do...	53,000
Elongation per inch after rupture	inch..	0.1850
Elongation per inch under strain at elastic limit	do...	.002200
Reduction in diameter at point of rupture	do...	.085
Reduction in area after rupture, per centum of original section		30.7
Position of rupture	" .90 from the neck	
Character of broken surface	granular; silky center	
Elongation of inch sections	" .12, ".25*	

No. 2721.

Marks, $M \overset{32 J_8}{T_{11}} M$
 Diameter, $\frac{1}{2}$ inch .505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001250	.000200	0.	.....	
9,000	45,000	.001450	.000200	.....	.....	
10,000	50,000	.001700	.000250			Elastic limit.
10,200	51,000	.001800	.000100	.....	.....	
10,400	52,000	.001900	.000100	.....	.....	
10,600	53,000	.002200	.000300	.....	.....	
10,800	54,000	.002900	.000700	.....	.....	
11,000	55,000	.003650	.000750	.....	.....	
11,200	56,000	.004150	.000500	.....	.....	
11,400	57,000	.004650	.000500	.....	.....	
11,600	58,000	.005300	.000650	.....	.....	
11,800	59,000	.006000	.000700	.....	.....	
12,000	60,000	.006550	.000550	.....	.....	
12,400	62,000	.008500	.001950	.....	.....	
12,800	64,000	.010000	.001500	.....	.....	
13,200	66,000	.011000	.001000	.....	.....	
13,600	68,000	.012400	.001400	.....	.....	
14,000	70,000	.014050	.001650	.....	.....	
14,400	72,000	.015600	.001550	.....	.....	
14,800	74,000	.017100	.001500	.....	.....	
15,200	76,000	.018750	.001650	.....	.....	
15,600	78,000	.020650	.001900	.....	.....	
16,000	80,000	.022750	.002100			Tensile strength.
16,400	82,000	.024800	.002050	.....	.....	
16,800	84,000	.027000	.002200	.....	.....	
17,200	86,000	.029750	.002750	.....	.....	
17,600	88,000	.032250	.002500	.....	.....	
18,000	90,000	.035600	.003350	.....	.....	
18,400	92,000	.038650	.003050	.....	.....	
18,800	94,000	.042600	.003950	.....	.....	
19,200	96,000	.047000	.004400	.....	.....	
19,600	98,000	.0525	.0055	.....	.....	
20,000	100,000	.0600	.0075	.....	.....	
20,400	102,000	.0700	.0100	.....	.....	
20,800	104,000	.0850	.0150	.....	.....	
21,020	105,100	.1200	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	105,100
Elastic limit per square inch of original section.....	do..	52,000
Elongation per inch after rupture.....	inch..	0.1700
Elongation per inch under strain at elastic limit.....	do..	.001900
Reduction in diameter at point of rupture.....	do..	.095
Reduction in area after rupture, per centum of original section.....		34.0
Position of rupture.....	".80 from neck	
Character of broken surface.....	granular; silky spot near center	
Elongation of inch sections.....	".23*, ".11	

No. 2722.

Marks, $^{32}J_8$
 $M T_{12} M$
 Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001350	.000200	0.	.....	
9,000	45,000	.001550	.000200	.....	.....	
10,000	50,000	.001750	.000200	.....	.....	
10,200	51,000	.001850	.000100	.....	.....	
10,400	52,000	.002000	.000150	.....	.....	Elastic limit.
10,600	53,000	.002100	.000100	.....	.....	
10,800	54,000	.002550	.000450	.....	.....	
11,000	55,000	.003000	.000450	.....	.....	
11,200	56,000	.003700	.000700	.....	.....	
11,400	57,000	.004300	.000600	.....	.....	
11,600	58,000	.004850	.000550	.....	.....	
11,800	59,000	.005550	.000700	.....	.....	
12,000	60,000	.006500	.000950	.....	.....	
12,400	62,000	.007700	.001200	.....	.....	
12,800	64,000	.009000	.001300	.....	.....	
13,200	66,000	.010600	.001600	.....	.....	
13,600	68,000	.012250	.001650	.....	.....	
14,000	70,000	.013500	.001250	.....	.....	
14,400	72,000	.015150	.001650	.....	.....	
14,800	74,000	.016750	.001600	.....	.....	
15,200	76,000	.018500	.001750	.....	.....	
15,600	78,000	.020250	.001750	.....	.....	
16,000	80,000	.022050	.001800	.....	.....	
16,400	82,000	.024000	.001950	.....	.....	
16,800	84,000	.026500	.002500	.....	.....	
17,200	86,000	.029000	.002500	.....	.....	
17,600	88,000	.031500	.002500	.....	.....	
18,000	90,000	.034500	.003000	.....	.....	
18,400	92,000	.037850	.003350	.....	.....	
18,800	94,000	.041150	.003300	.....	.....	
19,200	96,000	.045250	.004100	.....	.....	
19,600	98,000	.0500	.004750	.....	.....	
20,000	100,000	.0575	.0075	.....	.....	
20,400	102,000	.0650	.0075	.....	.....	
21,000	104,000	.0850	.0200	.....	.....	
21,180	105,900	.1200	.0350	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	105,900
Elastic limit per square inch of original section.....	do..	53,000
Elongation per inch after rupture.....	inch..	0.1900
Elongation per inch under strain at elastic limit.....	do..	.002100
Reduction in diameter at point of rupture.....	do..	.095
Reduction in area after rupture, per centum of original section.....		34.0
Position of rupture.....	1 inch from neck	
Character of broken surface.....	granular; dull silky center	
Elongation of inch sections.....	" .23*, ".15	

No. 1114.

Marks, $\frac{32}{B} \frac{J_a}{T_1} \frac{M}{M}$
 Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000700	.000100	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000180	0.	.....	
8,000	40,000	.001200	.000200	0.	.....	
9,000	45,000	.001400	.000200	0.	.....	
10,000	50,000	.001700	.000300	.000200	.000200	Elastic limit.
10,200	51,000	.002300	.000600	.....	.....	
10,400	52,000	.002750	.000450	.....	.....	
10,600	53,000	.003000	.000250	.....	.....	
10,800	54,000	.003300	.000300	.....	.....	
11,000	55,000	.004050	.000750	.002050	.001850	
11,200	56,000	.004550	.000500	.....	.....	
11,400	57,000	.005350	.000800	.....	.....	
11,600	58,000	.006100	.000750	.....	.....	
11,800	59,000	.006750	.000650	.....	.....	
12,000	60,000	.007400	.000650			Tensile strength.
12,400	62,000	.009600	.002200	.....	.....	
12,800	64,000	.011000	.001400	.....	.....	
13,200	66,000	.012350	.001350	.....	.....	
13,600	68,000	.014100	.001750	.....	.....	
14,000	70,000	.016050	.001950	.....	.....	
14,400	72,000	.018600	.002550	.....	.....	
14,800	74,000	.021000	.002400	.....	.....	
15,200	76,000	.022900	.001900	.....	.....	
15,600	78,000	.025250	.002350	.....	.....	
16,000	80,000	.027750	.002500			Tensile strength.
16,400	82,000	.030250	.002500	.....	.....	
16,800	84,000	.033200	.002950	.....	.....	
17,200	86,000	.036850	.003650	.....	.....	
17,600	88,000	.040350	.003500	.....	.....	
18,000	90,000	.045150	.004800	.....	.....	
18,400	92,000	.051150	.006000	.....	.....	
18,800	94,000	.0600	.008850	.....	.....	
19,200	96,000	.0700	.0100	.....	.....	
19,600	98,000	.0800	.0100	.....	.....	
19,750	98,750	.1250	.0450	.....	.....	

General summary.

Specific gravity.....	7.8641
Tensile strength per square inch of original section..... pounds..	98,750
Elastic limit per square inch of original section..... do...	50,000
Elongation per inch after rupture..... inch..	0.1750
Elongation per inch under strain at elastic limit..... do...	.001700
Reduction in diameter at point of rupture..... do...	.105
Reduction in area after rupture, per centum of original section.....	37.1
Position of rupture.....	".45 from neck
Character of broken surface.....	silky
Elongation of inch sections.....	".27*, ".08

No. 1115.

Marks, $\frac{32}{B} \frac{J_2}{T_2} \frac{M}{M}$ Diameter, $\frac{1}{4}$.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	.000050	.000050	
8,000	40,000	.001300	.000250	.000100	.000050	
9,000	45,000	.001450	.000150	.....	.....	
9,200	46,000	.001450	0.	.....	.....	
9,400	47,000	.001500	.000050	.....	.....	Elastic limit.
9,600	48,000	.001550	.000050	.....	.....	
9,800	49,000	.001700	.000150	.....	.....	
10,000	50,000	.001900	.000200	.000200	.000100	
10,200	51,000	.002450	.000550	.....	.....	
10,400	52,000	.002650	.000200	.....	.....	
10,600	53,000	.003100	.000450	.....	.....	
10,800	54,000	.003550	.000450	.....	.....	
11,000	55,000	.004300	.000750	.....	.....	
11,200	56,000	.005900	.000600	.....	.....	
11,400	57,000	.005650	.000750	.....	.....	
11,600	58,000	.006350	.000700	.....	.....	
11,800	59,000	.007200	.000850	.....	.....	
12,000	60,000	.007750	.000550	.....	.....	
12,400	62,000	.009700	.001950	.....	.....	
12,800	64,000	.011200	.001500	.....	.....	
13,200	66,000	.012850	.001650	.....	.....	
13,600	68,000	.014800	.001950	.....	.....	
14,000	70,000	.016600	.001800	.....	.....	
14,400	72,000	.019550	.002950	.....	.....	
14,800	74,000	.020850	.001300	.....	.....	
15,200	76,000	.022750	.001900	.....	.....	
15,600	78,000	.025400	.002650	.....	.....	
16,000	80,000	.028250	.002850	.....	.....	
16,400	82,000	.031200	.002950	.....	.....	
16,800	84,000	.034050	.002850	.....	.....	
17,200	86,000	.037800	.003750	.....	.....	
17,600	88,000	.041100	.003300	.....	.....	
18,000	90,000	.046250	.005150	.....	.....	
18,400	92,000	.052250	.006000	.....	.....	
18,800	94,000	.059500	.007250	.....	.....	
19,200	96,000	.0650	.0055	.....	.....	
19,600	98,000	.0900	.0250	.....	.....	
19,920	99,600	.....	.....	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section pounds.. 99,600
 Elastic limit per square inch of original section do... 48,000
 Elongation per inch after rupture inch.. 0.1250
 Elongation per inch under strain at elastic limit do... .001550
 Reduction in diameter at point of rupture do... .015
 Reduction in area after rupture, per centum of original section 5.7
 Position of rupture at neck
 Character of broken surface granular; defective spot near the circumference
 Elongation of inch sections ".12*, ".13

H. Ex. 31—16

No. 555.

Marks, ^{32 J₉}_{B T₃ M}
 Length, 4'¹¹.49.
 Diameter, '.798.
 Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000500	.000100	0.	.....	
12,500	25,000	.000650	.000150	0.	.....	
15,000	30,000	.000800	.000150	0.	.....	
17,500	35,000	.001000	.000200	0.	.....	
20,000	40,000	.001200	.000200	0.	.....	
20,500	41,000	.001250	.000050	.....	.....	
21,000	42,000	.001250	0.	.....	.....	
21,500	43,000	.001300	.000050	.....	.....	
22,000	44,000	.001300	0.	.....	.....	
22,500	45,000	.001350	.000050	0.	.....	
23,000	46,000	.001350	0.	.....	.....	
23,500	47,000	.001400	.000050	.....	.....	
24,000	48,000	.001400	0.	.....	.....	
24,500	49,000	.001450	.000050	.....	.....	
25,000	50,000	.001500	.000050	0.	.....	
25,500	51,000	.001550	.000050	.....	.....	
26,000	52,000	.001750	.000200	.....	.....	
26,500	53,000	.001900	.000150	.....	.....	
27,000	54,000	.002000	.000100			Elastic limit.
27,500	55,000	.002200	.000200	.000350	.000350	
28,000	56,000	.002300	.000100	.....	.....	
28,500	57,000	.002550	.000250	.....	.....	
29,000	58,000	.002800	.000250	.....	.....	
29,500	59,000	.003000	.000200	.....	.....	
30,000	60,000	.003250	.000250	.001250	.000300	
30,500	61,000	.003700	.000450	.....	.....	
31,000	62,000	.004000	.000300	.....	.....	
31,500	63,000	.004250	.000250	.....	.....	
32,000	64,000	.004700	.000450			Ultimate strength.
32,500	65,000	.005100	.000400	.002850	.001600	
47,400	94,800	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 54,000
 Compression per inch under stress at elastic limitinch.. 0.002000
 Ultimate strength per square inch of original sectionpounds.. 94,800
 Manner of failuretriple flexure

[Additional specimens.]

No. 2212.

Marks, ³²J₉
B T₄ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000600	.000250	0.	.....	
4,000	20,000	.000750	.000150	0.	.....	
5,000	25,000	.000850	.000100	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001250	.000250	0.	.....	
8,000	40,000	.001350	.000100	0.	.....	
9,000	45,000	.001500	.000150	0.	.....	
9,600	48,000	.001650	.000150			Elastic limit.
9,800	49,000	.001700	.000050	.....	.....	
10,000	50,000	.002650	.000950	.....	.....	
10,200	51,000	.004300	.001650	.....	.....	
10,400	52,000	.005950	.001650	.....	.....	
10,600	53,000	.007000	.001050	.....	.....	
10,800	54,000	.008000	.001000	.....	.....	
11,000	55,000	.008650	.000650	.....	.....	
11,200	56,000	.009350	.000700	.....	.....	
11,400	57,000	.010100	.000750	.....	.....	
11,600	58,000	.011050	.000950			
11,800	59,000	.011750	.000700	.....	.....	
12,000	60,000	.012900	.001150	.....	.....	
12,400	62,000	.014600	.001700	.....	.....	
12,800	64,000	.016200	.001600	.....	.....	
13,200	66,000	.018500	.002300	.....	.....	
13,600	68,000	.020500	.002000	.....	.....	
14,000	70,000	.022650	.002150	.....	.....	
14,400	72,000	.025000	.002350	.....	.....	
14,800	74,000	.028050	.003050	.....	.....	
15,200	76,000	.030300	.002250			
15,600	78,000	.033300	.003000	.....	.....	
16,000	80,000	.036600	.003300	.....	.....	
16,400	82,000	.040250	.003650	.....	.....	
16,800	84,000	.045000	.004750	.....	.....	
17,200	86,000	.050300	.005300	.....	.....	
17,600	88,000	.056500	.006200	.....	.....	
18,000	90,000	.066000	.009500	.....	.....	
18,400	92,000	.0850	.0190	.....	.....	
18,800	94,000	.1050	.0200			Tensile strength.
18,980	94,900	.1450	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	94,900
Elastic limit per square inch of original section.....	do...	49,000
Elongation per inch after rupture.....	inch..	0.2350
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do...	.085
Reduction in area after rupture, per centum of original section.....		30.7
Position of rupture.....	".05 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".23*, ".24*	

No. 2213.

Marks, ^{32 J₉}_{B T₅ M}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000700	.000100	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001100	.000200	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001400	.000150	0.	.....	
9,200	46,000	.001500	.000100	.....	.....	
9,400	47,000	.001550	.000050	.....	.....	
9,600	48,000	.001600	.000050			Elastic limit.
9,800	49,000	.001750	.000150	.....	.....	
10,000	50,000	.006050	.004300	.....	.....	
10,200	51,000	.007000	.000950	.....	.....	
10,400	52,000	.008250	.001250	.....	.....	
10,600	53,000	.008900	.000650	.....	.....	
10,800	54,000	.009550	.000650	.....	.....	
11,000	55,000	.010300	.000750	.....	.....	
11,200	56,000	.011250	.000950	.....	.....	
11,400	57,000	.012150	.000900	.....	.....	
11,600	58,000	.013350	.001200	.....	.....	
11,800	59,000	.014550	.001200	.....	.....	
12,000	60,000	.015350	.000800	.....	.....	
12,400	62,000	.017250	.001900	.....	.....	
12,800	64,000	.019250	.002000	.....	.....	
13,200	66,000	.022000	.002750	.....	.....	
13,600	68,000	.024500	.002500	.....	.....	
14,000	70,000	.027050	.002550	.....	.....	
14,400	72,000	.030000	.002950	.....	.....	
14,800	74,000	.033000	.003000	.....	.....	
15,200	76,000	.036750	.003750	.....	.....	
15,600	78,000	.040600	.003850	.....	.....	
16,000	80,000	.045750	.005150	.....	.....	
16,400	82,000	.051250	.005500	.....	.....	
16,800	84,000	.058500	.007250	.....	.....	
17,200	86,000	.067500	.009000	.....	.....	
17,600	88,000	.0850	.0175	.....	.....	
17,900	89,500					Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	89,500
Elastic limit per square inch of original section	do....	48,000
Elongation per inch after rupture.....	inch..	0.1050
Elongation per inch under strain at elastic limit	do....	.001600
Reduction in diameter at point of rupture.....	do....	.035
Reduction in area after rupture, per centum of original section		13.2
Position of rupture.....	".37 from neck	
Character of broken surface.....	granular; dull flaky spot at the circumference	
Elongation of inch sections.....	".12*, ".09	

No. 2214.

Marks, $\overset{32}{B} \overset{J_2}{T_6} \overset{M}{M}$
Diameter, $\overset{11}{\prime\prime}$.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000400	.000253	0.	.....	
3,000	15,000	.000600	.000200	0.	.....	
4,000	20,000	.000750	.000150	0.	.....	
5,000	25,000	.000900	.000150	0.	.....	
6,000	30,000	.001050	.000150	0.	.....	
7,000	35,000	.001250	.000200	0.	.....	
8,000	40,000	.001400	.000150	0.	.....	
9,000	45,000	.001550	.000150	0.	.....	
9,200	46,000	.001600	.000050	.....	.....	
9,400	47,000	.001650	.000050	.....	.....	
9,600	48,000	.001700	.000050	.....	.....	
9,800	49,000	.001800	.000100	.....	.....	Elastic limit.
10,000	50,000	.003000	.001200	.....	.....	
10,200	51,000	.005000	.002000	.....	.....	
10,400	52,000	.005800	.000800	.....	.....	
10,600	53,000	.006600	.000800	.....	.....	
10,800	54,000	.007300	.000700	.....	.....	
11,000	55,000	.007950	.000650	.....	.....	
11,200	56,000	.008600	.000750	.....	.....	
11,400	57,000	.009450	.000850	.....	.....	
11,600	58,000	.010250	.000800	.....	.....	
11,800	59,000	.010950	.000700	.....	.....	
12,000	60,000	.011750	.000800	.....	.....	
12,400	62,000	.013750	.002000	.....	.....	
12,800	64,000	.015550	.001800	.....	.....	
13,200	66,000	.017400	.001850	.....	.....	
13,600	68,000	.019800	.002400	.....	.....	
14,000	70,000	.022100	.002300	.....	.....	
14,400	72,000	.025000	.002900	.....	.....	
14,800	74,000	.027250	.002250	.....	.....	
15,200	76,000	.029500	.002250	.....	.....	
15,600	78,000	.032350	.002850	.....	.....	
16,000	80,000	.036050	.003700	.....	.....	
16,400	82,000	.040000	.003950	.....	.....	
16,800	84,000	.044250	.004250	.....	.....	
17,200	86,000	.049500	.005250	.....	.....	
17,600	88,000	.056000	.006500	.....	.....	
18,000	90,000	.064000	.008000	.....	.....	
18,400	92,000	.0800	.0160	.....	.....	
18,800	94,000	.1050	.0250	.....	.....	
18,820	94,100	.1200	.0150	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	94,100
Elastic limit per square inch of original section.....	do...	49,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do...	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	" .62 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	" .09, ".31*	

NEW JACKET, No. 9.

No. 2549.

Marks, ³²J₂
B T₇ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000700	.000150	0.	.....	
5,000	25,000	.000900	.000200	0.	.....	
6,000	30,000	.001100	.000200	0.	.....	
7,000	35,000	.001250	.000150	.....	.....	
8,000	40,000	.001450	.000200	.....	.....	
9,000	45,000	.001600	.000150	.....	.....	
9,200	46,000	.001650	.000050	.....	.....	
9,400	47,000	.001700	.000050	.....	.....	
9,600	48,000	.001700	0.	.....	.....	
9,800	49,000	.001750	.000050	.....	.....	
10,000	50,000	.001800	.000050	.....	.....	Elastic limit.
10,200	51,000	.001850	.000050	.....	.....	
10,400	52,000	.002050	.000200	.....	.....	
10,600	53,000	.002200	.000150	.....	.....	
10,800	54,000	.002450	.000250	.....	.....	
11,000	55,000	.002900	.000450	.....	.....	
11,200	56,000	.003600	.000700	.....	.....	
11,400	57,000	.004250	.000650	.....	.....	
11,600	58,000	.005000	.000750	.....	.....	
11,800	59,000	.005500	.000500	.....	.....	
12,000	60,000	.006150	.000650	.....	.....	
12,400	62,000	.007550	.001400	.....	.....	
12,800	64,000	.009050	.001500	.....	.....	
13,200	66,000	.010100	.001050	.....	.....	
13,600	68,000	.011800	.001700	.....	.....	
14,000	70,000	.013450	.001650	.....	.....	
14,400	72,000	.015000	.001550	.....	.....	
14,800	74,000	.016400	.001400	.....	.....	
15,200	76,000	.018100	.001700	.....	.....	
15,600	78,000	.019600	.001500	.....	.....	
16,000	80,000	.021550	.000950	.....	.....	
16,400	82,000	.023750	.002200	.....	.....	
16,800	84,000	.026000	.002250	.....	.....	
17,200	86,000	.027900	.001900	.....	.....	
17,600	88,000	.030600	.002700	.....	.....	
18,000	90,000	.033100	.002500	.....	.....	
18,400	92,000	.036050	.002950	.....	.....	
18,800	94,000	.039500	.003450	.....	.....	
19,200	96,000	.043500	.004000	.....	.....	
19,600	98,000	.048050	.004550	.....	.....	
20,000	100,000	.054000	.005950	.....	.....	
20,400	102,000	.0600	.0060	.....	.....	
20,800	104,000	.0750	.0150	.....	.....	
21,200	106,000	.0950	.0200	.....	.....	
21,280	106,400	.1100	.0150	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	106,400
Elastic limit per square inch of original section	do. ..	51,000
Elongation per inch after rupture	inch..	0.1700
Elongation per inch under strain at elastic limit	do. ..	.001850
Reduction in diameter at point of rupture	do. ..	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	granular; dull center	
Elongation of inch sections	".24", ".10	

No. 2550.

Marks, $\frac{32}{B} \frac{J_9}{T_8} \frac{M}{M}$ Diameter, $\frac{11}{16}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000850	.000200	0.	.....	
7,000	35,000	.001050	.000200	.....	.....	
8,000	40,000	.001200	.000150	.....	.....	
9,000	45,000	.001350	.000150	.....	.....	
9,200	46,000	.001400	.000050	.....	.....	
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001450	0.	.....	.....	
9,800	49,000	.001500	.000050	.....	.....	
10,000	50,000	.001550	.000050	.....	.....	
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001700	.000100	.....	.....	Elastic limit.
10,600	53,000	.002000	.000300	.....	.....	
10,800	54,000	.002350	.000350	.....	.....	
11,000	55,000	.002850	.000500	.....	.....	
11,200	56,000	.003350	.000500	.....	.....	
11,400	57,000	.003950	.000600	.....	.....	
11,600	58,000	.004650	.000700	.....	.....	
11,800	59,000	.005600	.000950	.....	.....	
12,000	60,000	.006250	.000650	.....	.....	
12,400	62,000	.007400	.001150	.....	.....	
12,800	64,000	.008900	.001500	.....	.....	
13,200	66,000	.010500	.001600	.....	.....	
13,600	68,000	.011750	.001250	.....	.....	
14,000	70,000	.013250	.001500	.....	.....	
14,400	72,000	.014650	.001400	.....	.....	
14,800	74,000	.016350	.001700	.....	.....	
15,200	76,000	.017850	.001500	.....	.....	
15,600	78,000	.019650	.001800	.....	.....	
16,000	80,000	.022000	.002350	.....	.....	
16,400	82,000	.024000	.002000	.....	.....	
16,800	84,000	.025850	.001850	.....	.....	
17,200	86,000	.028000	.002150	.....	.....	
17,600	88,000	.030600	.002600	.....	.....	
18,000	90,000	.033500	.002900	.....	.....	
18,400	92,000	.036750	.003250	.....	.....	
18,800	94,000	.040150	.003400	.....	.....	
19,200	96,000	.044250	.004100	.....	.....	
19,600	98,000	.049500	.005250	.....	.....	
20,000	100,000	.056000	.006500	.....	.....	
20,400	102,000	.0650	.0090	.....	.....	
20,800	104,000	.0850	.0200	.....	.....	
21,180	105,900	.1150	.0300	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	105,900
Elastic limit per square inch of original section	do...	52,000
Elongation per inch after rupture.....	inch..	0.1750
Elongation per inch under strain at elastic limit	do...	.001700
Reduction in diameter at point of rupture	do...	.085
Reduction in area after rupture, per centum of original section.....		30.7
Position of rupture.....		".60 from neck
Character of broken surface		granular, radiating from a dull spot at the circumference
Elongation of inch sections.....		".11, ".24*

No. 661.

Marks, $\frac{32}{B} \frac{J_a}{T_9} M$

Length, 4".502.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	-----	
5,000	10,000	.000267	.000167	0.	-----	
7,500	15,000	.000433	.000166	0.	-----	
10,000	20,000	.000600	.000167	0.	-----	
12,500	25,000	.000767	.000167	0.	-----	
15,000	30,000	.000933	.000166	0.	-----	
17,500	35,000	.001100	.000167	0.	-----	
20,000	40,000	.001300	.000200	0.	-----	
20,500	41,000	.001333	.000033	-----	-----	
21,000	42,000	.001367	.000034	-----	-----	
21,500	43,000	.001367	0.	-----	-----	
22,000	44,000	.001400	.000033	-----	-----	
22,500	45,000	.001433	.000033	-----	-----	
23,000	46,000	.001500	.000067	-----	-----	
23,500	47,000	.001500	0.	-----	-----	
24,000	48,000	.001533	.000033	-----	-----	
24,500	49,000	.001567	.000034	-----	-----	
25,000	50,000	.001633	.000066	-----	-----	Elastic limit.
25,500	51,000	.001667	.000034	-----	-----	
26,000	52,000	.002000	.000333	-----	-----	
26,500	53,000	.002400	.000400	-----	-----	
27,000	54,000	.003167	.000767	-----	-----	
27,500	55,000	.003833	.000666	-----	-----	Ultimate strength.
28,000	56,000	.004833	.001000	-----	-----	
50,400	100,800	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section..... pounds.. 51,000
 Compression per inch under stress at elastic limit..... inch.. 0.001667
 Ultimate strength per square inch of original section pounds.. 100,800
 Manner of failure..... triple flexure

No. 2224.

Marks, $\frac{32}{B} \frac{J_{10}}{T_1} \frac{M}{M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	0.	.....	
2,000	10,000	.000200	.000150	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000800	.000150	0.	.....	
7,000	35,000	.000950	.000150	0.	.....	
8,000	40,000	.001150	.000200	0.	.....	
9,000	45,000	.001400	.000250	.000050	.000050	
9,200	46,000	.001400	0.	.....	.....	
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001450	0.	.....	.....	
9,800	49,000	.001500	.000050	.....	.....	
10,000	50,000	.001550	.000050	.000050	0.	
10,200	51,000	.001550	0.	.....	.....	
10,400	52,000	.001600	.000050	.....	.....	
10,600	53,000	.001600	0.	.....	.....	
10,800	54,000	.001700	.000100	.....	.....	
11,000	55,000	.001750	.000050			Elastic limit.
11,200	56,000	.005050	.003300	.....	.....	
11,400	57,000	.005600	.000550	.....	.....	
11,600	58,000	.006150	.000550	.....	.....	
11,800	59,000	.006650	.000500	.....	.....	
12,000	60,000	.007350	.000700	.....	.....	
12,400	62,000	.008750	.001400	.....	.....	
12,800	64,000	.010600	.001850	.....	.....	
13,200	66,000	.012400	.001800	.....	.....	
13,600	68,000	.014000	.001600	.....	.....	
14,000	70,000	.015700	.001700	.....	.....	
14,400	72,000	.018000	.002300	.....	.....	
14,800	74,000	.020000	.002000	.....	.....	
15,200	76,000	.022500	.002500	.....	.....	
15,600	78,000	.024750	.002250	.....	.....	
16,000	80,000	.027000	.002250	.....	.....	
16,400	82,000	.029750	.002750	.....	.....	
16,800	84,000	.033000	.003250	.....	.....	
17,200	86,000	.036500	.003500	.....	.....	
17,600	88,000	.040100	.003600	.....	.....	
18,000	90,000	.045000	.004900	.....	.....	
18,400	92,000	.050600	.005600	.....	.....	
18,800	94,000	.0600	.0094	.....	.....	
19,200	96,000	.0700	.0100	.....	.....	
19,600	98,000	.0900	.0200	.....	.....	
19,770	98,850	.1100	.0200			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	98,850
Elastic limit per square inch of original section.....	do...	55,000
Elongation per inch after rupture.....	inch..	0.1800
Elongation per inch under strain at elastic limit.....	do...	.001750
Reduction in diameter at point of rupture.....	do...	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	"	.47 from neck
Character of broken surface.....		silky
Elongation of inch sections.....	"	.27*, ".09

No. 2225.

Marks, $\frac{32}{B} \frac{J_{10}}{T_2} M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001400	.000100	0.	.....	
9,200	46,000	.001450	.000050	.....	.....	
9,400	47,000	.001500	.000050	.....	.....	
9,600	48,000	.001600	.000100	.....	.....	
9,800	49,000	.001650	.000050	.....	.....	
10,000	50,000	.001700	.000050	.....	.....	
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001750	0.	.....	.....	
10,600	53,000	.001800	.000050	.....	.....	
10,800	54,000	.001800	0.	.....	.....	
11,000	55,000	.001850	.000050			Elastic limit.
11,200	56,000	.001900	.000050	.....	.....	
11,400	57,000	.001950	.000050	.....	.....	
11,600	58,000	.003900	.001950	.....	.....	
11,800	59,000	.004700	.000800	.....	.....	
12,000	60,000	.005550	.000850	.....	.....	
12,400	62,000	.006600	.001050	.....	.....	
12,800	64,000	.007800	.001200	.....	.....	
13,200	66,000	.009200	.001400	.....	.....	
13,600	68,000	.010500	.001300	.....	.....	
14,000	70,000	.012250	.001750	.....	.....	
14,400	72,000	.014100	.001850	.....	.....	
14,800	74,000	.015750	.001650	.....	.....	
15,200	76,000	.017500	.001750	.....	.....	
15,600	78,000	.019200	.001700	.....	.....	
16,000	80,000	.021850	.002650	.....	.....	
16,400	82,000	.023800	.001950	.....	.....	
16,800	84,000	.026100	.002300	.....	.....	
17,200	86,000	.028500	.002400	.....	.....	
17,600	88,000	.031100	.002600	.....	.....	
18,000	90,000	.034250	.003150			Tensile strength.
18,400	92,000	.037800	.003550	.....	.....	
18,800	94,000	.041750	.003950	.....	.....	
19,200	96,000	.046500	.004750	.....	.....	
19,600	98,000	.052000	.005500	.....	.....	
20,000	100,000	.0600	.0080	.....	.....	
20,400	102,000	.0750	.0150	.....	.....	
20,760	103,800	.1000	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	103,800
Elastic limit per square inch of original section	do...	57,000
Elongation per inch after rupture	inch..	0.1550
Elongation per inch under strain at elastic limit	do...	.001950
Reduction in diameter at point of rupture	do...	.085
Reduction in area after rupture, per centum of original section		30.7
Position of rupture	".1 from middle of stem	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	".21*, ".10	

No. 617.

Marks, $\frac{32}{B} \frac{J}{T} \frac{M}{M}$

Length, 4".492.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000200	.000200	0.	.....	
5,000	10,000	.000400	.000200	0.	.....	
7,500	15,000	.000500	.000150	0.	.....	
10,000	20,000	.000650	.000100	0.	.....	
12,500	25,000	.000800	.000150	0.	.....	
15,000	30,000	.001000	.000200	0.	.....	
17,500	35,000	.001200	.000200	0.	.....	
20,000	40,000	.001350	.000150	0.	.....	
20,500	41,000	.001400	.000050	.....	.....	
21,000	42,000	.001400	0.	.....	.....	
21,500	43,000	.001450	.000050	.....	.....	
22,000	44,000	.001500	.000050	.....	.....	
22,500	45,000	.001500	0.	0.	.....	
23,000	46,000	.001550	.000050	.....	.....	
23,500	47,000	.001600	.000050	.....	.....	
24,000	48,000	.001650	.000050	.....	.....	
24,500	49,000	.001750	.000100	.....	.....	
25,000	50,000	.001800	.000050	.000100	.000100	Elastic limit.
25,500	51,000	.002200	.000400	.....	.....	
26,000	52,000	.003650	.001450	.....	.....	
26,500	53,000	.005250	.001600	.....	.....	
27,000	54,000	.006000	.000750			Ultimate strength.
27,500	55,000	.007150	.001150	.005000	.001900	
48,100	96,200	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 50,000
 Compression per inch under stress at elastic limit.....inch.. 0.001800
 Ultimate strength per square inch of original section.....pounds.. 96,200
 Manner of failure.....triple flexure

No. 2519.

Marks, ³²J₁₁
B T₁ MDiameter, ¹¹.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001500	.000250	.....	.....	
9,200	46,000	.001600	.000100	.....	.....	
9,400	47,000	.001700	.000000	.....	.....	
9,600	48,000	.001750	.000050	.....	.....	Elastic limit.
9,800	49,000	.001950	.000200	.....	.....	
10,000	50,000	.003050	.001100	.....	.....	
10,200	51,000	.003400	.000350	.....	.....	
10,400	52,000	.003750	.000350	.....	.....	
10,600	53,000	.004350	.000600	.....	.....	
10,800	54,000	.004900	.000550	.....	.....	
11,000	55,000	.005600	.000700	.....	.....	
11,200	56,000	.006150	.000550	.....	.....	
11,400	57,000	.006850	.000700	.....	.....	
11,600	58,000	.007500	.000950	.....	.....	
11,800	59,000	.008250	.000750	.....	.....	
12,000	60,000	.009100	.000850	.....	.....	
12,400	62,000	.010850	.001750	.....	.....	
12,800	64,000	.012000	.001150	.....	.....	
13,200	66,000	.014750	.002750	.....	.....	
13,600	68,000	.016500	.001750	.....	.....	
14,000	70,000	.018100	.001600	.....	.....	
14,400	72,000	.020100	.002000	.....	.....	
14,800	74,000	.022050	.001950	.....	.....	
15,200	76,000	.024300	.002250	.....	.....	
15,600	78,000	.027150	.002850	.....	.....	
16,000	80,000	.029750	.002600	.....	.....	
16,400	82,000	.032750	.003000	.....	.....	
16,800	84,000	.036000	.003250	.....	.....	
17,200	86,000	.039750	.003750	.....	.....	
17,600	88,000	.045000	.005250	.....	.....	
18,000	90,000	.0550	.0100	.....	.....	
18,400	92,000	.0650	.0100	.....	.....	
18,800	94,000	.0750	.0100	.....	.....	
19,200	96,000	.0850	.0100	.....	.....	
19,500	97,500	.1250	.0400	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	97,500
Elastic limit per square inch of original section.....	do...	48,000
Elongation per inch after rupture.....	inch..	0.1650
Elongation per inch under strain at elastic limit.....	do...	.001750
Reduction in diameter at point of rupture.....	do...	.075
Reduction in area after rupture, per centum of original section		27.4
Position of rupture.....	$\frac{1}{8}$ inch from neck	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	" .22", ".11	

No. 2520.

Marks, $\frac{32}{B} \frac{J_{11}}{T_2} M$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000250	.000100	0.	-----	
3,000	15,000	.000500	.000250	0.	-----	
4,000	20,000	.000600	.000100	0.	-----	
5,000	25,000	.000750	.000150	0.	-----	
6,000	30,000	.003950	.000200	0.	-----	
7,000	35,000	.001100	.000150	0.	-----	
8,000	40,000	.001250	.000150	0.	-----	
9,000	45,000	.001500	.000250	-----	-----	
9,200	46,000	.001600	.000100	-----	-----	Elastic limit.
9,400	47,000	.001650	.000050	-----	-----	
9,600	48,000	.002000	.000350	-----	-----	
9,800	49,000	.002550	.000550	-----	-----	
10,000	50,000	.003050	.000500	-----	-----	
10,200	51,000	.003500	.000450	-----	-----	
10,400	52,000	.004250	.000750	-----	-----	
10,600	53,000	.005050	.000800	-----	-----	
10,800	54,000	.005650	.000600	-----	-----	
11,000	55,000	.006250	.000600	-----	-----	
11,200	56,000	.007000	.000750	-----	-----	
11,400	57,000	.007800	.000800	-----	-----	
11,600	58,000	.008550	.000750	-----	-----	
11,800	59,000	.009350	.000800	-----	-----	
12,000	60,000	.010100	.000750	-----	-----	
12,400	62,000	.011850	.001750	-----	-----	
12,800	64,000	.014000	.002150	-----	-----	
13,200	66,000	.015600	.001600	-----	-----	
13,600	68,000	.017900	.002300	-----	-----	
14,000	70,000	.020000	.002100	-----	-----	
14,400	72,000	.022050	.002050	-----	-----	
14,800	74,000	.024000	.001950	-----	-----	
15,200	76,000	.026500	.002500	-----	-----	
15,600	78,000	.029250	.002750	-----	-----	
16,000	80,000	.032250	.003000	-----	-----	
16,400	82,000	.035600	.003350	-----	-----	
16,800	84,000	.039750	.004150	-----	-----	
17,200	86,000	.045000	.005250	-----	-----	
17,600	88,000	.0550	.0100	-----	-----	
18,000	90,000	.0600	.0050	-----	-----	
18,400	92,000	.0650	.0050	-----	-----	
18,800	94,000	.0800	.0150	-----	-----	
19,200	96,000	.1000	.0200	-----	-----	
19,300	96,500	-----	-----	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	96,500
Elastic limit per square inch of original section.....	do...	47,000
Elongation per inch after rupture.....	inch..	0.1200
Elongation per inch under strain at elastic limit	do...	.001650
Reduction in diameter at point of rupture.....	do...	.034
Reduction in area after rupture, per centum of original section.....		13.2
Position of rupture.....		".15 from neck
Character of broken surface.....	granular; opened cracks in surface of stem	
Elongation of inch sections.....		".13*, ".11

No. 649.

Marks, $\frac{32}{B} \frac{J}{T} \frac{11}{3} M$

Length, 4".485.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000133	.000133	0.	.....	
5,000	10,000	.000267	.000134	0.	.....	
7,500	15,000	.000433	.000166	0.	.....	
10,000	20,000	.000600	.000167	0.	.....	
12,500	25,000	.000767	.000167	.000033	.000033	
15,000	30,000	.000967	.000200	.000067	.000034	
17,500	35,000	.001167	.000200	.000067	0.	
20,000	40,000	.001333	.000166	.000133	.000066	
20,500	41,000	.001367	.000034	.....	.....	
21,000	42,000	.001400	.000033	.....	.....	
21,500	43,000	.001433	.000033			Elastic limit.
22,000	44,000	.001767	.000334	.....	.....	
22,500	45,000	.002100	.000333	.....	.....	
23,000	46,000	.002433	.000333	.....	.....	
23,500	47,000	.002567	.000134	.....	.....	
24,000	48,000	.002867	.000300	.....	.....	
24,500	49,000	.003500	.000633	.....	.....	
25,000	50,000	.004000	.000500			Ultimate strength.
45,880	91,760	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 43,000
 Compression per inch under stress at elastic limit.....inch.. 0.001433
 Ultimate strength per square inch of original section.....pounds.. 91,760
 Manner of failure.....triple flexure

NEW JACKET No. 11.

No. 2711.

Marks, $\frac{32}{B} \frac{J_{11}}{T_4} M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pound.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.050150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001450	.000150	.....	.....	
9,200	46,000	.001500	.000050			Elastic limit.
9,400	47,000	.001550	.000050	.....	.....	
9,600	48,000	.001550	0.	.....	.....	
9,800	49,000	.001600	.000050	.....	.....	
10,000	50,000	.001650	.000050	.....	.....	
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.002000	.000300	.....	.....	
10,600	53,000	.003000	.001000	.....	.....	
10,800	54,000	.003750	.000750	.....	.....	
11,000	55,000	.004650	.000900	.....	.....	
11,200	56,000	.005600	.000950	.....	.....	
11,400	57,000	.006200	.000600	.....	.....	
11,600	58,000	.007050	.000850	.....	.....	
11,800	59,000	.007350	.000300	.....	.....	
12,000	60,000	.008900	.001550	.....	.....	
12,400	62,000	.010150	.001250	.....	.....	
12,800	64,000	.012000	.001850	.....	.....	
13,200	66,000	.013750	.001750	.....	.....	
13,600	68,000	.015350	.001600	.....	.....	
14,000	70,000	.017050	.001700	.....	.....	
14,400	72,000	.019300	.002250	.....	.....	
14,800	74,000	.021600	.002300	.....	.....	
15,200	76,000	.024000	.002400	.....	.....	
15,600	78,000	.026300	.002300	.....	.....	
16,000	80,000	.029050	.002750	.....	.....	
16,400	82,000	.032550	.003500	.....	.....	
16,800	84,000	.036000	.003450	.....	.....	
17,200	86,000	.039500	.003500	.....	.....	
17,600	88,000	.043600	.004100	.....	.....	
18,000	90,000	.0500	.0064	.....	.....	
18,400	92,000	.0550	.0059	.....	.....	
18,800	94,000	.0600	.0050	.....	.....	
19,200	96,000	.0750	.0150	.....	.....	
19,600	98,000	.1050	.0300			Tensile strength.
19,680	98,400	.1350	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	98,400
Elastic limit per square inch of original section.....	do..	51,000
Elongation per inch after rupture.....	inch..	0.2100
Elongation per inch under strain at elastic limit.....	do..	.001700
Reduction in diameter at point of rupture.....	do..	.095
Reduction in area after rupture, per centum of original section.....		34.0
Position of rupture.....	1 inch from neck	
Character of broken surface.....	silky, 40 per centum; granular, 60 per centum	
Elongation of inch sections.....	".18, ".24*	

No. 2712.

Marks, $\frac{32}{B} \frac{J}{T} \frac{11}{M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001050	.000200	0.	.....	
7,000	35,000	.001200	.000150	0.	.....	
8,000	40,000	.001400	.000200	0.	.....	
9,000	45,000	.001550	.000150	.....	.....	
10,000	50,000	.001750	.000200	.....	.....	Elastic limit.
10,200	51,000	.002550	.000800	.....	.....	
10,400	52,000	.003700	.001150	.....	.....	
10,600	53,000	.004650	.000950	.....	.....	
10,800	54,000	.005550	.000900	.....	.....	
11,000	55,000	.006000	.000450	.....	.....	
11,200	56,000	.007000	.001000	.....	.....	
11,400	57,000	.007600	.000600	.....	.....	
11,600	58,000	.008200	.000600	.....	.....	
11,800	59,000	.008900	.000700	.....	.....	
12,000	60,000	.009600	.000700	.....	.....	
12,400	62,000	.011400	.001800	.....	.....	
12,800	64,000	.013100	.001700	.....	.....	
13,200	66,000	.014600	.001500	.....	.....	
13,600	68,000	.016250	.001650	.....	.....	
14,000	70,000	.018100	.001850	.....	.....	
14,400	72,000	.020100	.002000	.....	.....	
14,800	74,000	.022500	.002600	.....	.....	
15,200	76,000	.024800	.002300	.....	.....	
15,600	78,000	.027000	.002200	.....	.....	
16,000	80,000	.029750	.002750	.....	.....	
16,400	82,000	.033000	.003250	.....	.....	
16,800	84,000	.036000	.003000	.....	.....	
17,200	86,000	.039250	.003250	.....	.....	
17,600	88,000	.043500	.004250	.....	.....	
18,000	90,000	.048500	.005000	.....	.....	
18,400	92,000	.0550	.0065	.....	.....	
18,800	94,000	.0600	.0050	.....	.....	
19,200	96,000	.0750	.0150	.....	.....	
19,600	98,000	.0950	.0200	.....	.....	
19,760	98,800	.1300	.0350	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds...	98,800
Elastic limit per square inch of original section	do...	50,000
Elongation per inch after rupture	inch...	0.2100
Elongation per inch under strain at elastic limit	do...	.001750
Reduction in diameter at point of rupture	do...	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	".75 from neck	
Character of broken surface	silky; trace of granulation	
Elongation of inch sections	".30*, ".12	

No. 676.

Marks, ^{32 J₁₁}_{B T₆ M}Length, 4¹/₂.50.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000267	.000167	0.	.....	
7,500	15,000	.000433	.000166	0.	.....	
10,000	20,000	.000600	.000167	0.	.....	
12,500	25,000	.000800	.000200	0.	.....	
15,000	30,000	.000933	.000133	0.	.....	
17,500	35,000	.001100	.000167	0.	.....	
20,000	40,000	.001267	.000167	0.	.....	
20,500	41,000	.001300	.000033	.....	.....	
21,000	42,000	.001300	0.	.....	.....	
21,500	43,000	.001333	.000033	.....	.....	
22,000	44,000	.001367	.000034	.....	.....	
22,500	45,000	.001400	.000033	.....	.....	
23,000	46,000	.001433	.000033	.....	.....	
23,500	47,000	.001467	.000034	.....	.....	
24,000	48,000	.001500	.000033	.....	.....	
24,500	49,000	.001500	0.	.....	.....	
25,000	50,000	.001533	.000033			Elastic limit.
25,500	51,000	.001567	.000034	.....	.....	
26,000	52,000	.002333	.000766	.....	.....	
26,500	53,000	.003233	.000900	.....	.....	
27,000	54,000	.003833	.000600	.....	.....	
27,500	55,000	.004500	.000667			Ultimate strength.
28,000	56,000	.005100	.000600	.....	.....	
49,100	98,200	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 51,000
 Compression per inch under stress at elastic limit.....inch.. 0.001567
 Ultimate strength per square inch of original section.....pounds.. 98,200
 Manner of failure.....triple flexure

H, Ex. 31—17

No. 2226.

Marks, $^{32}J_{12}$
B T₁ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001550	.000200	.....	.....	
10,000	50,000	.001700	.000150	.....	.....	
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001800	.000050	.....	.....	
10,600	53,000	.001900	.000100	.....	.....	
10,800	54,000	.001900	0.	.....	.....	
11,000	55,000	.001950	.000050			Elastic limit.
11,200	56,000	.002000	.000050	.....	.....	
11,400	57,000	.010200	.008300	.....	.....	
11,600	58,000	.011000	.000700	.....	.....	
11,800	59,000	.011700	.000700	.....	.....	
12,000	60,000	.012600	.000900	.....	.....	
12,400	62,000	.014150	.001550	.....	.....	
12,800	64,000	.016200	.002050	.....	.....	
13,200	66,000	.018250	.002050	.....	.....	
13,600	68,000	.020000	.001750	.....	.....	
14,000	70,000	.022250	.002250	.....	.....	
14,400	72,000	.024400	.002150	.....	.....	
14,800	74,000	.027000	.002600	.....	.....	
15,200	76,000	.029250	.002250	.....	.....	
15,600	78,000	.032250	.003000	.....	.....	
16,000	80,000	.035600	.003350	.....	.....	
16,400	82,000	.039000	.003400	.....	.....	
16,800	84,000	.043250	.004250	.....	.....	
17,200	86,000	.049000	.005750	.....	.....	
17,600	88,000	.055250	.006250	.....	.....	
18,000	90,000	.0650	.009750	.....	.....	
18,400	92,000	.0800	.0150	.....	.....	
18,800	94,000	.0950	.0150	.....	.....	
19,200	96,000	.1100	.0150	.....	.....	
19,300	96,500	.1750	.0150			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	96,500
Elastic limit per square inch of original section.....	do....	56,000
Elongation per inch after rupture.....	inch..	0.2600
Elongation per inch under strain at elastic limit.....	do....	.002000
Reduction in diameter at point of rupture.....	do....	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	at middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".24", ".28"	

No. 2227.

Marks, ³²J₁₂
B T₂ MDiameter, ¹¹/.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000700	.000150	0.	.....	
5,000	25,000	.000900	.000200	.000050	.000050	
6,000	30,000	.001100	.000200	.000050	0.	
7,000	35,000	.001300	.000200	.000050	0.	
8,000	40,000	.001450	.000150	.000050	0.	
9,000	45,000	.001600	.000150	.000100	.000050	
10,000	50,000	.001750	.000150	.000100	0.	Elastic limit.
10,200	51,000	.001750	0.	.....	.....	
10,400	52,000	.001800	.000050	.....	.....	
10,600	53,000	.001850	.000050	.....	.....	
10,800	54,000	.002750	.000900	.....	.....	
11,000	55,000	.012800	.010050	.....	.....	
11,200	56,000	.013750	.000950	.....	.....	
11,400	57,000	.014750	.001000	.....	.....	
11,600	58,000	.015500	.000750	.....	.....	
11,800	59,000	.016100	.000600	.....	.....	
12,000	60,000	.017250	.001150	.....	.....	
12,400	62,000	.019700	.002450	.....	.....	
12,800	64,000	.022250	.002550	.....	.....	
13,200	66,000	.024250	.002000	.....	.....	
13,600	68,000	.027250	.003000	.....	.....	
14,000	70,000	.029500	.002250	.....	.....	
14,400	72,000	.032700	.003200	.....	.....	
14,800	74,000	.036500	.003800	.....	.....	
15,200	76,000	.040600	.004100	.....	.....	
15,600	78,000	.045600	.005000	.....	.....	
16,000	80,000	.052000	.006400			Tensile strength.
16,400	82,000	.058750	.006750	.....	.....	
16,800	84,000	.0650	.006250	.....	.....	
17,200	86,000	.0800	.0150	.....	.....	
17,600	88,000	.1000	.0200			
18,000	90,000	.1500	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	90,000
Elastic limit per square inch of original section.....	do....	53,000
Elongation per inch after rupture.....	inch..	0.2850
Elongation per inch under strain at elastic limit.....	do....	.001850
Reduction in diameter at point of rupture.....	do....	.155
Reduction in area after rupture, per centum of original section.....		51.9
Position of rupture.....	1".2 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".23, ".34*	

No. 618.

Marks, $^{32}J_{12}$
 $^B T_3 M$

Length, 4.7496.

Diameter, .798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000500	.000200	0.	.....	
10,000	20,000	.000700	.000200	0.	.....	
12,500	25,000	.000900	.000200	0.	.....	
15,000	30,000	.001000	.000100	0.	.....	
17,500	35,000	.001200	.000200	0.	.....	
20,000	40,000	.001400	.000200	.000050	.000050	
22,500	45,000	.001550	.000150	.000050	0.	
23,000	46,000	.001550	0.	.....	.....	
23,500	47,000	.001600	.000050	.....	.....	
24,000	48,000	.001650	.000050	.....	.....	
24,500	49,000	.001700	.000050	.....	.....	
25,000	50,000	.001750	.000050	.000100	.000050	
25,500	51,000	.001800	.000050	.....	.....	
26,000	52,000	.001850	.000050	.....	.....	
26,500	53,000	.001900	.000050	.....	.....	
27,000	54,000	.001950	.000050	.....	.....	
27,500	55,000	.002000	.000050	.000250	.000150	Elastic limit.
28,000	56,000	.007050	.005050	.....	.....	
28,500	57,000	.007300	.000250	.....	.....	
29,000	58,000	.007800	.000500	.....	.....	
29,500	59,000	.008400	.000600			Ultimate strength.
30,000	60,000	.009050	.000650	.....	.....	
45,800	91,600	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 55,000
 Compression per inch under stress at elastic limit inch.. 0.002000
 Ultimate strength per square inch of original section pounds.. 91,600
 Manner of failure..... triple flexure

No. 2078.

Marks, ³²J₁₂
B T₁ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001250	.000200	0.	.....	
9,000	45,000	.001400	.000150	0.	.....	
9,200	46,000	.001450	.000050	.....	.....	
9,400	47,000	.001550	.000100	.....	.....	
9,600	48,000	.001600	.000050	.....	.....	
9,800	49,000	.001650	.000050	.....	.....	
10,000	50,000	.001750	.000100	.000050	.000050	Elastic limit.
10,200	51,000	.002100	.000350	.....	.....	
10,400	52,000	.002600	.000500	.....	.....	
10,600	53,000	.003100	.000500	.....	.....	
10,800	54,000	.003600	.000500	.....	.....	
11,000	55,000	.004150	.000550	.....	.....	
11,200	56,000	.004850	.000700	.....	.....	
11,400	57,000	.005850	.001000	.....	.....	
11,600	58,000	.006600	.000750	.....	.....	
11,800	59,000	.007650	.001050	.....	.....	
12,000	60,000	.008500	.000850	.....	.....	
12,400	62,000	.010250	.001750	.....	.....	
12,800	64,000	.012000	.001750	.....	.....	
13,200	66,000	.013950	.001950	.....	.....	
13,600	68,000	.015950	.002000	.....	.....	
14,000	70,000	.018000	.002150	.....	.....	
14,400	72,000	.020050	.002050	.....	.....	
14,800	74,000	.022850	.002800	.....	.....	
15,200	76,000	.025300	.002450	.....	.....	
15,600	78,000	.027800	.002500	.....	.....	
16,000	80,000	.030850	.003050	.....	.....	
16,400	82,000	.034000	.003150	.....	.....	
16,800	84,000	.037800	.003800	.....	.....	
17,200	86,000	.041600	.003800	.....	.....	
17,600	88,000	.046750	.005150	.....	.....	
18,000	90,000	.053000	.006250	.....	.....	
18,400	92,000	.060500	.007500	.....	.....	
18,800	94,000	.0800	.0195			Tensile strength.
19,110	95,550	.1050	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	95,550
Elastic limit per square inch of original section.....	do....	50,000
Elongation per inch after rupture.....	inch..	0.1900
Elongation per inch under strain at elastic limit.....	do....	.001750
Reduction in diameter at point of rupture.....	do....	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture	$\frac{1}{2}$ inch from middle of stem	
Character of broken surface.....	silky center; granular at circumference	
Elongation of inch sections.....	".30*, ".08	

No. 2079.

Marks, $\frac{32}{B} \frac{J_{12}}{T_2 M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	0.	.....	
2,000	10,000	.000150	.000100	0.	.....	
3,000	15,000	.000250	.000100	0.	.....	
4,000	20,000	.000350	.000100	0.	.....	
5,000	25,000	.000550	.000200	0.	.....	
6,000	30,000	.000700	.000150	0.	.....	
7,000	35,000	.000850	.000150	0.	.....	
8,000	40,000	.001050	.000200	0.	.....	
9,000	45,000	.001250	.000200	0.	.....	
9,200	46,000	.001300	.000050			Elastic limit.
9,400	47,000	.001350	.000050	.....	.....	
9,600	48,000	.001400	.000050	.....	.....	
9,800	49,000	.001450	.000050	.....	.....	
10,000	50,000	.001550	.000100	.000050	.000050	
10,200	51,000	.001650	.000100	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001850	.000150	.....	.....	
10,800	54,000	.002100	.000250	.....	.....	
11,000	55,000	.002550	.000450	.....	.....	
11,200	56,000	.003200	.000650			Tensile strength.
11,400	57,000	.003800	.000600	.....	.....	
11,600	58,000	.004700	.000900	.....	.....	
11,800	59,000	.005600	.000900	.....	.....	
12,000	60,000	.006650	.001050	.....	.....	
12,400	62,000	.008150	.001500	.....	.....	
12,800	64,000	.010000	.001850	.....	.....	
13,200	66,000	.012100	.002100	.....	.....	
13,600	68,000	.014500	.002400	.....	.....	
14,000	70,000	.016250	.001750	.....	.....	
14,400	72,000	.018200	.001950			Tensile strength.
14,800	74,000	.020850	.002650	.....	.....	
15,200	76,000	.023500	.002650	.....	.....	
15,600	78,000	.025600	.002100	.....	.....	
16,000	80,000	.028400	.002800	.....	.....	
16,400	82,000	.031600	.003200	.....	.....	
16,800	84,000	.034800	.003200	.....	.....	
17,200	86,000	.039000	.004200	.....	.....	
17,600	88,000	.043000	.004000	.....	.....	
18,000	90,000	.048250	.005250	.....	.....	
18,400	92,000	.054900	.006650			Tensile strength.
18,800	94,000	.063500	.008600	.....	.....	
19,200	96,000	.0850	.0215	.....	.....	
19,510	97,550	.1150	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	97,550
Elastic limit per square inch of original section.....	do.....	52,000
Elongation per inch after rupture.....	inch..	0.1900
Elongation per inch under strain at elastic limit.....	do.....	.001700
Reduction in diameter at point of rupture.....	do.....	.105
Reduction in area after rupture, per centum of original section.....		37.1
Position of rupture.....	$\frac{1}{2}$ inch from neck	
Character of broken surface.....	granular; dull center	
Elongation of inch sections.....	".26*, ".12	

No. 609.

Marks, $\frac{32J_{13}}{BT_3M}$

Length, 4".496.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000700	.000150	0.	.....	
15,000	30,000	.000850	.000150	0.	.....	
17,500	35,000	.001050	.000200	0.	.....	
20,000	40,000	.001250	.000200	0.	.....	
22,500	45,000	.001450	.000200	0.	.....	
23,000	46,000	.001500	.000050	.....	.....	
23,500	47,000	.001500	0.	.....	.....	
24,000	48,000	.001550	.000050	.....	.....	
24,500	49,000	.001600	.000050	.....	.....	
25,000	50,000	.001650	.000050	0.	.....	
25,500	51,000	.001750	.000100	.....	.....	
26,000	52,000	.001800	.000050	.....	.....	
26,500	53,000	.001850	.000050	.....	.....	
27,000	54,000	.001900	.000050			Elastic limit.
27,500	55,000	.002000	.000100	.000200	.000200	
28,000	56,000	.002250	.000250	.....	.....	
28,500	57,000	.002400	.000150	.....	.....	
29,000	58,000	.002600	.000200	.....	.....	
29,500	59,000	.003000	.000400	.....	.....	
30,000	60,000	.003550	.000550	.001450	.001250	
30,500	61,000	.004250	.000700	.....	.....	
31,000	62,000	.004900	.000650	.....	.....	
31,500	63,000	.005550	.000650	.....	.....	
32,000	64,000	.006300	.000750			Ultimate strength.
32,500	65,000	.007150	.000850	.004750	.003300	
49,900	99,800	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 54,000
 Compression per inch under stress at elastic limit.....inch.. 0.001900
 Ultimate strength per square inch of original section.....pounds.. 99,800
 Manner of failuretriple flexure

No. 2088.

Marks, $^{32}J_{14}$
B T₁ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000700	.000200	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001350	.000200	0.	.....	
9,000	45,000	.001550	.000200	0.	.....	
9,200	46,000	.001550	0.			Elastic limit.
9,400	47,000	.001550	0.	.....	.....	
9,600	48,000	.001650	.000100	.....	.....	
9,800	49,000	.001650	0.	.....	.....	
10,000	50,000	.001700	.000050	0.	.....	
10,200	51,000	.001700	0.	.....	.....	
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.001800	.000050	.....	.....	
10,800	54,000	.007000	.005200	.....	.....	
11,000	55,000	.008000	.001000	.....	.....	
11,200	56,000	.009250	.001250	.....	.....	
11,400	57,000	.010050	.000800	.....	.....	
11,600	58,000	.010600	.000550	.....	.....	
11,800	59,000	.011350	.000750	.....	.....	
12,000	60,000	.012100	.000750	.....	.....	
12,400	62,000	.014050	.001950	.....	.....	
12,800	64,000	.016000	.001950	.....	.....	
13,200	66,000	.018000	.002000	.....	.....	
13,600	68,000	.020000	.002000	.....	.....	
14,000	70,000	.023000	.003000	.....	.....	
14,400	72,000	.025600	.002600	.....	.....	
14,800	74,000	.027850	.002250	.....	.....	
15,200	76,000	.031050	.003200	.....	.....	
15,600	78,000	.034250	.003200	.....	.....	
16,000	80,000	.038250	.004000	.....	.....	
16,400	82,000	.042500	.004250	.....	.....	
16,800	84,000	.047250	.004750	.....	.....	
17,200	86,000	.053500	.006250	.....	.....	
17,600	88,000	.061750	.008250	.....	.....	
18,000	90,000	.0700	.008250	.....	.....	
18,400	92,000	.0900	.0200	.....	.....	
18,720	93,600	.1200	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	93,600
Elastic limit per square inch of original section	do....	53,000
Elongation per inch after rupture	inch..	0.2100
Elongation per inch under strain at elastic limit.....	do....	.001800
Reduction in diameter at point of rupture	do....	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture	".35 from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".32, * ".10	

No. 2089.

Marks, $^{32}J_{14}$
B T₂ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000550	.000250	0.	.....	
4,000	20,000	.000700	.000150	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001050	.000200	0.	.....	
7,000	35,000	.001200	.000150	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001550	.000200	.000050	.000050	
9,200	46,000	.001550	0.			Elastic limit.
9,400	47,000	.001600	.000050	.....	.....	
9,600	48,000	.001650	.000050	.....	.....	
9,800	49,000	.001700	.000050	.....	.....	
10,000	50,000	.001700	0.	.000050	0.	
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001750	0.	.....	.....	
10,600	53,000	.001800	.000050	.....	.....	
10,800	54,000	.001850	.000050	.....	.....	
11,000	55,000	.007500	.005650	.....	.....	
11,200	56,000	.008100	.000600			Tensile strength.
11,400	57,000	.008900	.000800	.....	.....	
11,600	58,000	.010000	.001100	.....	.....	
11,800	59,000	.010500	.000500	.....	.....	
12,000	60,000	.011000	.000500	.....	.....	
12,400	62,000	.012400	.001400	.....	.....	
12,800	64,000	.014250	.001850	.....	.....	
13,200	66,000	.016050	.001800	.....	.....	
13,600	68,000	.018050	.002000	.....	.....	
14,000	70,000	.020600	.002550	.....	.....	
14,400	72,000	.022750	.002150			Tensile strength.
14,800	74,000	.025600	.002850	.....	.....	
15,200	76,000	.028000	.002400	.....	.....	
15,600	78,000	.031500	.003500	.....	.....	
16,000	80,000	.035000	.003500	.....	.....	
16,400	82,000	.039000	.004000	.....	.....	
16,800	84,000	.043000	.004000	.....	.....	
17,200	86,000	.048500	.005500	.....	.....	
17,600	88,000	.054750	.006250	.....	.....	
18,000	90,000	.062250	.007500	.....	.....	
18,400	92,000	.0700	.007750	.....	.....	
18,800	94,000	.0900	.0200	.....	.....	
19,060	95,300	.1300	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	95,300
Elastic limit per square inch of original section.....	do....	54,000
Elongation per inch after rupture.....	inch..	0.2250
Elongation per inch under strain at elastic limit.....	do....	.001850
Reduction in diameter at point of rupture.....	do....	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface.....	silky; traces of granular metal	
Elongation of inch sections.....	".31*, ".14	

No. 611.

Marks, $\frac{32}{B} \frac{J_{14}}{T_3} M$

Length, 4'' .498.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	-----	
5,000	10,000	.000300	.000150	0.	-----	
7,500	15,000	.000500	.000200	.000050	.000050	
10,000	20,000	.000650	.000150	.000050	0.	
12,500	25,000	.000800	.000150	.000050	0.	
15,000	30,000	.001000	.000200	.000050	0.	
17,500	35,000	.001150	.000150	.000100	.000050	
20,000	40,000	.001350	.000200	.000050	.000050	
20,500	41,000	.001350	0.	-----	-----	
21,000	42,000	.001400	.000050	-----	-----	
21,500	43,000	.001450	.000050	-----	-----	
22,000	44,000	.001500	.000050	-----	-----	
22,500	45,000	.001500	0.	.000100	.000050	
23,000	46,000	.001550	.000050	-----	-----	Elastic limit.
23,500	47,000	.001700	.000150	-----	-----	
24,000	48,000	.001750	.000050	-----	-----	
24,500	49,000	.001900	.000150	-----	-----	
25,000	50,000	.004400	.002500	-----	-----	
46,000	92,000	-----	-----	-----	-----	Ultimate strength.

General summary.

Elastic limit per square inch of original section pounds.. 46,000
 Compression per inch under stress at elastic limit..... inch.. 0.001550
 Ultimate strength per square inch of original section pounds.. 92,000
 Manner of failure..... triple flexure

No. 2228.

Marks, $\frac{32}{M} \frac{J_{15}}{T_1 M}$
Diameter ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000700	.000200	0.	.....	
5,000	25,000	.000900	.000200	0.	.....	
6,000	30,000	.001050	.000150	0.	.....	
7,000	35,000	.001200	.000150	0.	.....	
8,000	40,000	.001400	.000200	0.	.....	
9,000	45,000	.001550	.000150	0.	.....	
10,000	50,000	.001700	.000150	0.		Elastic limit.
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001800	.000050	.....	.....	
10,600	53,000	.001850	.000050	.....	.....	
10,800	54,000	.002050	.000200	.....	.....	
11,000	55,000	.002300	.000250	.....	.....	
11,200	56,000	.003050	.000750	.....	.....	
11,400	57,000	.003750	.000700	.....	.....	
11,600	58,000	.004700	.000950	.....	.....	
11,800	59,000	.005500	.000800	.....	.....	
12,000	60,000	.006200	.000700	.....	.....	
12,400	62,000	.007750	.001550	.....	.....	
12,800	64,000	.009600	.001850	.....	.....	
13,200	66,000	.011000	.001400	.....	.....	
13,600	68,000	.012650	.001650	.....	.....	
14,000	70,000	.014550	.001900	.....	.....	
14,400	72,000	.016250	.001700	.....	.....	
14,800	74,000	.018100	.001850	.....	.....	
15,200	76,000	.020000	.001900	.....	.....	
15,600	78,000	.022050	.002050	.....	.....	
16,000	80,000	.024500	.002450	.....	.....	
16,400	82,000	.027500	.003000	.....	.....	
16,800	84,000	.030150	.002650	.....	.....	
17,200	86,000	.033250	.003100	.....	.....	
17,600	88,000	.036000	.002750	.....	.....	
18,000	90,000	.039700	.003700	.....	.....	
18,400	92,000	.045000	.005300	.....	.....	
18,800	94,000	.050750	.005750	.....	.....	
19,200	96,000	.0600	.009250	.....	.....	
19,600	98,000	.0650	.0050	.....	.....	
20,000	100,000	.0850	.0200			Tensile strength.
20,310	101,550	.1200	.0350	.....	.....	

General summary.

Specific gravity	7.8613
Tensile strength per square inch of original section.....	pounds.. 101,550
Elastic limit per square inch of original section	do.... 53,000
Elongation per inch after rupture	inch.. 0.2100
Elongation per inch under strain at elastic limit	do.... .001850
Reduction in diameter at point of rupture.....	do.... .105
Reduction in area after rupture, per centum of original section.....	37.1
Position of rupture.....	".1 from middle of stem
Character of broken surface.....	granular; dull center
Elongation of inch sections	".27*, ".15

No. 2229.

Marks, $\frac{32}{M} \frac{J_{15}}{T_2 M}$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000500	.000250	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001350	.000200	.000050	.000050	
9,000	45,000	.001550	.000200	.000050	0.	Elastic limit.
10,000	50,000	.001900	.000350	.000100	.000050	
10,200	51,000	.002100	.000200	.....	.....	
10,400	52,000	.002550	.000450	.....	.....	
10,600	53,000	.003050	.000500	.....	.....	
10,800	54,000	.003750	.000700	.....	.....	
11,000	55,000	.004350	.000600	.....	.....	
11,200	56,000	.005150	.000800	.....	.....	
11,400	57,000	.005900	.000750	.....	.....	
11,600	58,000	.006600	.000700	.....	.....	
11,800	59,000	.007350	.000750			Tensile strength.
12,000	60,000	.008150	.000800	.....	.....	
12,400	62,000	.009750	.001600	.....	.....	
12,800	64,000	.011000	.001250	.....	.....	
13,200	66,000	.012700	.001700	.....	.....	
13,600	68,000	.014350	.001650	.....	.....	
14,000	70,000	.016300	.001950	.....	.....	
14,400	72,000	.018100	.001800	.....	.....	
14,800	74,000	.019750	.001650	.....	.....	
15,200	76,000	.021500	.001750	.....	.....	
15,600	78,000	.024250	.002750			Tensile strength.
16,000	80,000	.026250	.002000	.....	.....	
16,400	82,000	.029000	.002750	.....	.....	
16,800	84,000	.032000	.003000	.....	.....	
17,200	86,000	.035000	.003000	.....	.....	
17,600	88,000	.038250	.003250	.....	.....	
18,000	90,000	.042700	.004450	.....	.....	
18,400	92,000	.047000	.005200	.....	.....	
18,800	94,000	.055250	.007350	.....	.....	
19,200	96,000	.0600	.004750	.....	.....	
19,600	98,000	.0750	.0150			Tensile strength.
20,000	100,000	.1050	.0300	.....	.....	
20,060	100,300	.1350	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	100,300
Elastic limit per square inch of original section.....	do....	50,000
Elongation per inch after rupture.....	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do....	.001900
Reduction in diameter at point of rupture.....	do....	.104
Reduction in area after rupture, per centum of original section.....		37.1
Position of rupture.....	".1 from middle of stem	
Character of broken surface.....	granular; dull center	
Elongation of inch sections.....	".29", ".14	

No. 619.

Marks, $^{32}J_{15}$
 $M T_3 M$

Length, 4'' .502.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000400	.000100	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000800	.000250	.000050	.000050	
15,000	30,000	.000950	.000150	.000050	0.	
17,500	35,000	.001050	.000100	.000050	0.	
20,000	40,000	.001250	.000200	.000050	0.	
20,500	41,000	.001250	0.	.....	.....	
21,000	42,000	.001300	.000050	.....	.....	
21,500	43,000	.001350	.000050	.....	.....	
22,000	44,000	.001400	.000050	.....	.....	
22,500	45,000	.001450	.000050	.000050	0.	
23,000	46,000	.001500	.000050	.....	.....	
23,500	47,000	.001500	.000050	.....	.....	
24,000	48,000	.001550	0.	.....	.....	
24,500	49,000	.001600	.000050	.....	.....	
25,000	50,000	.001650	.000050	0.	.000050	Elastic limit.
25,500	51,000	.001750	.000100	.....	.....	
26,000	52,000	.002000	.000250	.....	.....	
26,500	53,000	.003000	.001000	.....	.....	
27,000	54,000	.004250	.001250			Ultimate strength.
27,500	55,000	.005550	.001300	.003500	.003500	
49,500	99,000	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 50,000
 Compression per inch under stress at elastic limitinch.. 0.001650
 Ultimate strength per square inch of original sectionpounds.. 99,000
 Manner of failuretriple flexure

No. 2280.

Marks, $\overset{32}{M} \overset{J_{16}}{T_1} \overset{M}{M}$
Diameter, ".505.
Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001100	.000150	0.	.....	
7,000	35,000	.001200	.000100	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001500	.000150	0.	.....	
10,000	50,000	.001700	.000200	0.		Elastic limit.
10,200	51,000	.001700	0.	.....	.....	
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.001800	.000050	.....	.....	
10,800	54,000	.001900	.000100	.....	.....	
11,000	55,000	.002300	.000400	.....	.....	
11,200	56,000	.004000	.001700	.....	.....	
11,400	57,000	.005350	.001350	.....	.....	
11,600	58,000	.006250	.000900	.....	.....	
11,800	59,000	.007000	.000750	.....	.....	
12,000	60,000	.008000	.001000	.....	.....	
12,400	62,000	.009150	.001150	.....	.....	
12,800	64,000	.010600	.001450	.....	.....	
13,200	66,000	.012250	.001650	.....	.....	
13,600	68,000	.013900	.001650	.....	.....	
14,000	70,000	.015600	.001700	.....	.....	
14,400	72,000	.017300	.001700	.....	.....	
14,800	74,000	.019500	.002200	.....	.....	
15,200	76,000	.022000	.002500	.....	.....	
15,600	78,000	.023750	.001750	.....	.....	
16,000	80,000	.026000	.002250			Tensile strength.
16,400	82,000	.028500	.002500	.....	.....	
16,800	84,000	.031000	.002500	.....	.....	
17,200	86,000	.034000	.003000	.....	.....	
17,600	88,000	.037500	.003500	.....	.....	
18,000	90,000	.042250	.004750	.....	.....	
18,400	92,000	.046000	.003750	.....	.....	
18,800	94,000	.052250	.006250	.....	.....	
19,200	96,000	.0600	.007750	.....	.....	
19,600	98,000	.0700	.0100	.....	.....	
20,000	100,000	.0950	.0250	.....	.....	
20,250	101,250	.1400	.0450	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	101,250
Elastic limit per square inch of original section	do....	54,000
Elongation per inch after rupture.....	inch..	0.1650
Elongation per inch under strain at elastic limit	do....	.001900
Reduction in diameter at point of rupture	do....	.065
Reduction in area after rupture, per centum of original section		23.9
Position of rupture	".65 from neck	
Character of broken surface.	granular; dull spot at circumference	
Elongation of inch sections.....	".21*, ".12	

No. 2281.

Marks, $^{32}J_{16}$
 $M T_2 M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000700	.000300	0.	.....	
5,000	25,000	.000900	.000200	0.	.....	
6,000	30,000	.001000	.000100	0.	.....	
7,000	35,000	.001150	.000100	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001500	.000200	0.	.....	
10,000	50,000	.001650	.000150	0.		Elastic limit.
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.001800	.000100	.....	.....	
10,600	53,000	.001800	0.	.....	.....	
10,800	54,000	.001850	.000050	.....	.....	
11,000	55,000	.001900	.000050	.....	.....	
11,200	56,000	.002000	.000100	.....	.....	
11,400	57,000	.002250	.0005250	.....	.....	
11,600	58,000	.007750	.000500	.....	.....	
11,800	59,000	.008500	.000750	.....	.....	
12,000	60,000	.009250	.000750	.....	.....	
12,400	62,000	.011200	.001950	.....	.....	
12,800	64,000	.012250	.001050	.....	.....	
13,200	66,000	.014500	.002250	.....	.....	
13,600	68,000	.016500	.002000	.....	.....	
14,000	70,000	.018100	.001600	.....	.....	
14,400	72,000	.019600	.001500	.....	.....	
14,800	74,000	.021750	.002150	.....	.....	
15,200	76,000	.023600	.001850	.....	.....	
15,600	78,000	.026050	.002450	.....	.....	
16,000	80,000	.028700	.002650	.....	.....	
16,400	82,000	.031600	.002900	.....	.....	
16,800	84,000	.035000	.003400	.....	.....	
17,200	86,000	.038150	.003150	.....	.....	
17,600	88,000	.042750	.004600	.....	.....	
18,000	90,000	.047050	.004300	.....	.....	
18,400	92,000	.054000	.006950	.....	.....	
18,800	94,000	.0600	.0060	.....	.....	
19,200	96,000	.0700	.0100	.....	.....	
19,600	98,000	.0950	.0250	.....	.....	
19,810	99,050	.1450	.0500			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	99,050
Elastic limit per square inch of original section	do....	56,000
Elongation per inch after rupture	inch..	0.2200
Elongation per inch under strain at elastic limit	do....	.002000
Reduction in diameter at point of rupture	do....	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	".60 from neck	
Character of broken surface	silky, in part interspersed with fine granulation	
Elongation of inch sections	".31*, ".13	

No. 636.

Marks, $^{32}J_{16}$
 $M T_3 M$

Length, 4".508.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	Initial load.
500	1,000	0.	0.	0.	0.	
2,500	5,000	.000167	.000167	0.		
5,000	10,000	.000333	.000166	0.		
7,500	15,000	.000500	.000167	0.		
10,000	20,000	.000667	.000167	0.		
12,500	25,000	.000833	.000166	0.		
15,000	30,000	.001000	.000167	0.		
17,500	35,000	.001167	.000167	0.		
20,000	40,000	.001333	.000166	0.		
22,500	45,000	.001533	.000200	.000033	.000033	
25,000	50,000	.001700	.000167	.000033	0.	
25,500	51,000	.001733	.000033			
26,000	52,000	.001767	.000034			
26,500	53,000	.001800	.000033			
27,000	54,000	.001833	.000033			
27,500	55,000	.001900	.000067	.000067	.000034	
28,000	56,000	.001933	.000033			
28,500	57,000	.002000	.000667			Elastic limit.
29,000	58,000	.007800	.005800			
29,500	59,000	.009033	.001233			
30,000	60,000	.010033	.001000			Ultimate strength.
48,010	96,020					

General summary.

Elastic limit per square inch of original section.....pounds.. 57,000
 Compression per inch under stress at elastic limitinch.. 0.002000
 Ultimate strength per square inch of original section.....pounds.. 96,020
 Manner of failuretriple flexure

No. 2080.

Marks, ³²J₁₇
B T₁ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000550	.000250	0.	.....	
4,000	20,000	.000700	.000150	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001050	.000200	0.	.....	
7,000	35,000	.001200	.000150	0.	.....	
8,000	40,000	.001350	.000100	0.	.....	
9,000	45,000	.001450	.000100	0.	.....	
9,200	46,000	.001550	.000100	.....	.....	
9,400	47,000	.001650	.000100	.....	.....	
9,600	48,000	.001750	.000100	.....	.....	Elastic limit.
9,800	49,000	.002100	.000350	.....	.....	
10,000	50,000	.002800	.000700	.....	.....	
10,200	51,000	.003400	.000600	.....	.....	
10,400	52,000	.003900	.000500	.....	.....	
10,600	53,000	.004650	.000750	.....	.....	
10,800	54,000	.005300	.000650	.....	.....	
11,000	55,000	.006200	.000900	.....	.....	
11,200	56,000	.007050	.000850	.....	.....	
11,400	57,000	.008100	.001050	.....	.....	
11,600	58,000	.008700	.000600	.....	.....	
11,800	59,000	.009600	.000900	.....	.....	
12,000	60,000	.010300	.000700	.....	.....	
12,400	62,000	.012050	.001750	.....	.....	
12,800	64,000	.013900	.001850	.....	.....	
13,200	66,000	.015800	.001900	.....	.....	
13,600	68,000	.017850	.002050	.....	.....	
14,000	70,000	.020000	.002150	.....	.....	
14,400	72,000	.022400	.002400	.....	.....	
14,800	74,000	.024900	.002500	.....	.....	
15,200	76,000	.027500	.002600	.....	.....	
15,600	78,000	.031500	.004000	.....	.....	
16,000	80,000	.034500	.003000	.....	.....	
16,400	82,000	.038000	.003500	.....	.....	
16,800	84,000	.041600	.003600	.....	.....	
17,200	86,000	.046800	.005200	.....	.....	
17,600	88,000	.052000	.005200	.....	.....	
18,000	90,000	.060100	.008100	.....	.....	
18,400	92,000	.0750	.0149	.....	.....	
18,800	94,000	.0900	.0150	.....	.....	
19,120	95,600	.1300	.0400	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	95,600
Elastic limit per square inch of original section.....	do....	48,000
Elongation per inch after rupture.....	inch..	0.2100
Elongation per inch under strain at elastic limit.....	do....	.001750
Reduction in diameter at point of rupture.....	do....	.095
Reduction in area after rupture, per centum of original section.....		34.0
Position of rupture.....	".40 from middle of stem	
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections.....	".27*, ".15	

No. 2081.

Marks, $\frac{32}{B} \frac{J_{17}}{T_2} M$ Diameter, $\frac{11}{16}$.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001200	.000250	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001500	.000150	0.	.....	
9,200	46,000	.001550	.000050	.....	.....	
9,400	47,000	.001600	.000050	.....	.....	
9,600	48,000	.001700	.000100			Elastic limit.
9,800	49,000	.002100	.000400	.....	.....	
10,000	50,000	.002650	.000550	.....	.....	
10,200	51,000	.003250	.000600	.....	.....	
10,400	52,000	.003950	.000700	.....	.....	
10,600	53,000	.004550	.000600	.....	.....	
10,800	54,000	.005200	.000650	.....	.....	
11,000	55,000	.006050	.000850	.....	.....	
11,200	56,000	.006750	.000700	.....	.....	
11,400	57,000	.007450	.000700	.....	.....	
11,600	58,000	.008250	.000800	.....	.....	
11,800	59,000	.009100	.000850	.....	.....	
12,000	60,000	.010000	.000900	.....	.....	
12,400	62,000	.011550	.001550	.....	.....	
12,800	64,000	.013250	.001700	.....	.....	
13,200	66,000	.015200	.001950	.....	.....	
13,600	68,000	.017100	.001900	.....	.....	
14,000	70,000	.019250	.002150	.....	.....	
14,400	72,000	.021500	.002250	.....	.....	
14,800	74,000	.023600	.002100	.....	.....	
15,200	76,000	.026350	.002750	.....	.....	
15,600	78,000	.028650	.002200	.....	.....	
16,000	80,000	.032300	.003650	.....	.....	
16,400	82,000	.036000	.003700	.....	.....	
16,800	84,000	.040250	.004250	.....	.....	
17,200	86,000	.044250	.004000	.....	.....	
17,600	88,000	.048500	.004250	.....	.....	
18,000	90,000	.055000	.006500	.....	.....	
18,400	92,000	.0650	.0100	.....	.....	
18,800	94,600	.0800	.0150	.....	.....	
19,200	96,000	.0950	.0150	.....	.....	
19,340	96,700	.1350	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	96,700
Elastic limit per square inch of original section.....	do....	48,000
Elongation per inch after rupture.....	inch..	0.2100
Elongation per inch under strain at elastic limit.....	do....	.001700
Reduction in diameter at point of rupture.....	do....	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface.....	silky; interspersed with fine granulation	
Elongation of inch sections.....	" .29*, ".13	

No. 610.

Marks, $^{32}J_{17}$
B T₃ M

Length, 4'' .502.

Diameter, '' .799.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000600	.000200	0.	.....	
12,500	25,000	.000750	.000150	0.	.....	
15,000	30,000	.000950	.000200	0.	.....	
17,500	35,000	.001100	.000150	0.	.....	
20,000	40,000	.001250	.000150	0.	.....	
20,500	41,000	.001250	0.	.....	.....	
21,000	42,000	.001300	.000050	.....	.....	
21,500	43,000	.001300	0.	.....	.....	
22,000	44,000	.001350	.000050	.....	.....	
22,500	45,000	.001350	0.	— .000050	— .000050	
23,000	46,000	.001350	0.	.....	.....	
23,500	47,000	.001300	— .000050			Elastic limit.
24,000	48,000	.002000	.000700	.....	.....	
24,500	49,000	.002800	.000800	.....	.....	
25,000	50,000	.003500	.000700	.001800	.001850	
25,500	51,000	.004000	.000500	.....	.....	
26,000	52,000	.004750	.000750			Ultimate strength.
26,500	53,000	.005320	.000600	.....	.....	
27,000	54,000	.006100	.000750	.....	.....	
27,500	55,000	.006750	.000650	.004850	.003050	
44,800	89,600	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 47,000
 Compression per inch under stress at elastic limitinch.. 0.001300
 Ultimate strength per square inch of original section.....pounds.. 89,600
 Manner of failuretriple flexure

[Additional specimens.]

No. 2545.

Marks, $^{32}J_{17}$
 $M T_4 M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000850	.000100	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001150	.000150	0.	.....	
9,000	45,000	.001350	.000200	.....	.....	
10,000	50,000	.001600	.000250	.....	.....	
10,200	51,000	.001700	.000100	.....	.....	
10,400	52,000	.001800	.000100			Elastic limit.
10,600	53,000	.002100	.000300	.....	.....	
10,800	54,000	.002300	.000200	.....	.....	
11,000	55,000	.002800	.000500	.....	.....	
11,200	56,000	.003100	.000300	.....	.....	
11,400	57,000	.003700	.000600	.....	.....	
11,600	58,000	.004050	.000350	.....	.....	
11,800	59,000	.004650	.000600	.....	.....	
12,000	60,000	.005500	.000850	.....	.....	
12,400	62,000	.006750	.001250	.....	.....	
12,800	64,000	.008200	.001450	.....	.....	
13,200	66,000	.009750	.001550	.....	.....	
13,600	68,000	.011600	.001850	.....	.....	
14,000	70,000	.013750	.002150	.....	.....	
14,400	72,000	.015300	.001550	.....	.....	
14,800	74,000	.017000	.001700	.....	.....	
15,200	76,000	.019050	.002050	.....	.....	
15,600	78,000	.020850	.001800	.....	.....	
16,000	80,000	.023200	.002350	.....	.....	
16,400	82,000	.025600	.002400	.....	.....	
16,800	84,000	.028250	.002650	.....	.....	
17,200	86,000	.031050	.002800	.....	.....	
17,600	88,000	.034300	.003250	.....	.....	
18,000	90,000	.037550	.003250	.....	.....	
18,400	92,000	.041750	.004200	.....	.....	
18,800	94,000	.047000	.005250	.....	.....	
19,200	96,000	.0550	.0080	.....	.....	
19,600	98,000	.0600	.0050	.....	.....	
20,000	100,000	.0700	.0100	.....	.....	
20,400	102,000	.0950	.0250			Tensile strength.
20,480	102,400	.1050	.0100	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	102,400
Elastic limit per square inch of original section	do...	52,000
Elongation per inch after rupture	inch..	0.1800
Elongation per inch under strain at elastic limit	do...	.001800
Reduction in diameter at point of rupture	do...	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture	".35 from neck	
Character of broken surface	dull silky	
Elongations of inch sections	".25*, ".11	

No. 2546.

Marks, ^{32 J₁₇}_{M T₅ M}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001150	.000200	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001500	.000200	.....	.....	
9,200	46,000	.001600	.000100	.....	.....	
9,400	47,000	.001650	.000050	.....	.....	
9,600	48,000	.001700	.000050			Elastic limit.
9,800	49,000	.002000	.000300	.....	.....	
10,000	50,000	.002700	.000700	.....	.....	
10,200	51,000	.004000	.001300	.....	.....	
10,400	52,000	.004450	.000450	.....	.....	
10,600	53,000	.004750	.000300	.....	.....	
10,800	54,000	.005650	.000900	.....	.....	
11,000	55,000	.006200	.000550	.....	.....	
11,200	56,000	.007000	.000800	.....	.....	
11,400	57,000	.007800	.000800	.....	.....	
11,600	58,000	.008600	.000800	.....	.....	
11,800	59,000	.009250	.000650	.....	.....	
12,000	60,000	.010150	.000900	.....	.....	
12,400	62,000	.012050	.001900	.....	.....	
12,800	64,000	.014700	.002650	.....	.....	
13,200	66,000	.016650	.001950	.....	.....	
13,600	68,000	.018550	.001900	.....	.....	
14,000	70,000	.020600	.002050	.....	.....	
14,400	72,000	.023100	.002500	.....	.....	
14,800	74,000	.026300	.003200	.....	.....	
15,200	76,000	.029000	.002700	.....	.....	
15,600	78,000	.031250	.002250	.....	.....	
16,000	80,000	.035000	.003750	.....	.....	
16,400	82,000	.039000	.004000	.....	.....	
16,800	84,000	.043500	.004500	.....	.....	
17,200	86,000	.048750	.005250	.....	.....	
17,600	88,000	.0550	.006250	.....	.....	
18,000	90,000	.0650	.0100	.....	.....	
18,400	92,000	.0800	.0150	.....	.....	
18,800	94,000	.1000	.0200	.....	.....	
18,900	94,500	.1300	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	94,500
Elastic limit per square inch of original section.....	do...	48,000
Elongation per inch after rupture.....	inch..	0.2250
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do...	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	" .85 from neck	
Character of broken surface.....	dull silky	
Elongation of inch sections.....	" .29, " .16	

No. 658.

Marks, ^{32 J 17}_{M T₆ M}
Length, 4".505.
Diameter, ".798.
Sectional area, ".50.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000067	.000067	— .000033	— .000033	
5,000	10,000	.000233	.000166	— .000033	0.	
7,500	15,000	.000367	.000134	— .000067	— .000034	
10,000	20,000	.000567	.000200	— .000067	0.	
12,500	25,000	.000733	.000166	— .000067	0.	
15,000	30,000	.000900	.000167	— .000067	0.	
17,500	35,000	.001067	.000967	.....	.....	
20,000	40,000	.001233	.000166	.....	.....	
22,500	45,000	.001400	.000167	.....	.....	
23,000	46,000	.001433	.000033	.....	.....	
23,500	47,000	.001500	.000067	.....	.....	
24,000	48,000	.001533	.000033	.....	.....	
24,500	49,000	.001567	.000034			Elastic limit.
25,000	50,000	.001667	.000100	.....	.....	
25,500	51,000	.001800	.000133	.....	.....	
26,000	52,000	.001967	.000167	.....	.....	
26,500	53,000	.002167	.000200	.....	.....	
27,000	54,000	.002333	.000166	.....	.....	
27,500	55,000	.002600	.000267	.....	.....	
28,000	56,000	.002867	.000367	.....	.....	
28,500	57,000	.003200	.000233	.....	.....	
29,000	58,000	.003700	.000500	.....	.....	
49,960	99,920					Ultimate strength.

General summary.

Elastic limit per square inch of original section.....pounds.. 49,000
Compression per inch under stress at elastic limit.....inch.. 0.001567
Ultimate strength per square inch of original section.....pounds.. 99,920
Manner of failure.....triple flexure

No. 2076.

Marks, $\frac{32}{B} \frac{J_{18}}{T_1} M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000900	.000250	0.	.....	
6,000	30,000	.001050	.000150	0.	.....	
7,000	35,000	.001200	.000150	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001500	.000150	0.	.....	Elastic limit.
9,200	46,000	.001700	.000200	.....	.....	
9,400	47,000	.001900	.000200	.....	.....	
9,600	48,000	.002400	.000500	.....	.....	
9,800	49,000	.003100	.000700	.....	.....	
10,000	50,000	.003750	.000650	.....	.....	
10,200	51,000	.004550	.000800	.....	.....	
10,400	52,000	.005150	.000600	.....	.....	
10,600	53,000	.006050	.000900	.....	.....	
10,800	54,000	.006600	.000550	.....	.....	
11,000	55,000	.007450	.000850	.....	.....	
11,200	56,000	.008200	.000750	.....	.....	
11,400	57,000	.009100	.000900	.....	.....	
11,600	58,000	.009900	.000800	.....	.....	
11,800	59,000	.010600	.000700	.....	.....	
12,000	60,000	.011550	.000950	.....	.....	
12,400	62,000	.013200	.001650	.....	.....	
12,800	64,000	.015500	.002300	.....	.....	
13,200	66,000	.017350	.001750	.....	.....	
13,600	68,000	.019000	.001650	.....	.....	
14,000	70,000	.021550	.002550	.....	.....	
14,400	72,000	.024000	.002450	.....	.....	
14,800	74,000	.026250	.002250	.....	.....	
15,200	76,000	.028750	.002500	.....	.....	
15,600	78,000	.031750	.003000	.....	.....	
16,000	80,000	.035000	.003250	.....	.....	
16,400	82,000	.039600	.004600	.....	.....	
16,800	84,000	.044000	.004400	.....	.....	
17,200	86,000	.049250	.005250	.....	.....	
17,600	88,000	.055750	.006500	.....	.....	
18,000	90,000	.0650	.009250	.....	.....	
18,400	92,000	.0850	.0200	.....	.....	
18,800	94,000	.1050	.0200	.....	.....	
18,890	94,450	.1350	.0300	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	94,450
Elastic limit per square inch of original section	do...	45,000
Elongation per inch after rupture	inch..	0.2050
Elongation per inch under strain at elastic limit	do...	.001500
Reduction in diameter at point of rupture	do...	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture	$\frac{1}{2}$ inch from middle of stem	
Character of broken surface	granular, 60 per centum; silky, 40 per centum	
Elongation of inch sections	"28* "13	

No. 2077.

Marks, $\frac{32}{B} \frac{J}{T_2} \frac{18}{M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000700	.000200	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001150	.000150	0.	.....	
9,000	45,000	.001450	.000200	.000150	.000150	
9,200	46,000	.001450	0.			Elastic limit.
9,400	47,000	.001700	.000250	.....	.....	
9,600	48,000	.001800	.000100	.....	.....	
9,800	49,000	.002050	.000250	.....	.....	
10,000	50,000	.002700	.000650	.000900	.000750	
10,200	51,000	.003200	.000500	.....	.....	
10,400	52,000	.003950	.000750	.....	.....	
10,600	53,000	.004600	.000650	.....	.....	
10,800	54,000	.005500	.000900	.....	.....	
11,000	55,000	.006150	.000650	.....	.....	
11,200	56,000	.006900	.000750	.....	.....	
11,400	57,000	.007700	.000800	.....	.....	
11,600	58,000	.008450	.000750	.....	.....	
11,800	59,000	.009250	.000800	.....	.....	
12,000	60,000	.010000	.000750	.....	.....	
12,400	62,000	.011250	.001250	.....	.....	
12,800	64,000	.013650	.002400	.....	.....	
13,200	66,000	.015900	.002250	.....	.....	
13,600	68,000	.017150	.001250	.....	.....	
14,000	70,000	.019150	.002000	.....	.....	
14,400	72,000	.021300	.002150	.....	.....	
14,800	74,000	.024050	.002750	.....	.....	
15,200	76,000	.026200	.002150	.....	.....	
15,600	78,000	.029050	.002850	.....	.....	
16,000	80,000	.032400	.003250	.....	.....	
16,400	82,000	.035350	.003250	.....	.....	
16,800	84,000	.039250	.003600	.....	.....	
17,200	86,000	.043550	.004300	.....	.....	
17,600	88,000	.048400	.004850	.....	.....	
18,000	90,000	.054500	.006100	.....	.....	
18,400	92,000	.061900	.007400	.....	.....	
18,800	94,000	.0850	.0231	.....	.....	
19,200	96,000	.1000	.0150			Tensile strength.
19,360	96,800	.1350	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	96,800
Elastic limit per square inch of original section	do...	46,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit	do...	.001450
Reduction in diameter at point of rupture	do...	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture		".55 from neck
Character of broken surface	granular, 50 per centum; silky, 50 per centum	
Elongation of inch sections		".28", ".12

No. 608.

Marks, ^{32 J₁₈}
BT₃M

Length, 4.11

Diameter, .798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000700	.000150	0.	.....	
15,000	30,000	.000850	.000150	0.	.....	
17,500	35,000	.001050	.000200	0.	.....	
20,000	40,000	.001250	.000200	0.	.....	
20,500	41,000	.001300	.000050	.....	.....	
21,000	42,000	.001350	.000050	.....	.....	
21,500	43,000	.001350	0.	.....	.....	
22,000	44,000	.001400	.000050	.....	.....	
22,500	45,000	.001500	.000100	0.	.....	
23,000	46,000	.001550	.000050			Elastic limit.
23,500	47,000	.001750	.000200	.....	.....	
24,000	48,000	.002000	.000250	.....	.....	
24,500	49,000	.002500	.000500	.....	.....	
25,000	50,000	.003000	.000500	.001500	.001500	
25,500	51,000	.003500	.000500			Ultimate strength.
26,000	52,000	.003850	.000350	.....	.....	
26,500	53,000	.004250	.000400	.....	.....	
27,000	54,000	.004750	.000500	.....	.....	
27,500	55,000	.005200	.000450	.003450	.001950	
52,200	104,400					

General summary.

Elastic limit per square inch of original sectionpounds.. 46,000
 Compression per inch under stress at elastic limitinch.. 0.001550
 Ultimate strength per square inch of original sectionpounds.. 104,400
 Manner of failure.....triple flexure

[Additional specimens.]

No. 2521.

Marks, ^{32 J₁₈}_{M T₄ M}Diameter, ¹¹.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000850	.000100	0.	.....	
7,000	35,000	.001150	.000300	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001450	.000150	.....	.....	
9,200	46,000	.001500	.000050			Elastic limit.
9,400	47,000	.001500	0.	.....	.....	
9,600	48,000	.001550	.000050	.....	.....	
9,800	49,000	.001600	.000050	.....	.....	
10,000	50,000	.001900	.000300	.....	.....	
10,200	51,000	.002500	.000600	.....	.....	
10,400	52,000	.002800	.000300	.....	.....	
10,600	53,000	.003200	.000400	.....	.....	
10,800	54,000	.003700	.000500	.....	.....	
11,000	55,000	.004450	.000750	.....	.....	
11,200	56,000	.005000	.000550			
11,400	57,000	.005850	.000850	.....	.....	
11,600	58,000	.006500	.000650	.....	.....	
11,800	59,000	.007250	.000750	.....	.....	
12,000	60,000	.008400	.001150	.....	.....	
12,400	62,000	.009700	.001300	.....	.....	
12,800	64,000	.011350	.001650	.....	.....	
13,200	66,000	.013250	.001900	.....	.....	
13,600	68,000	.014750	.001500	.....	.....	
14,000	70,000	.017000	.002250	.....	.....	
14,400	72,000	.019000	.003000			Tensile strength.
14,800	74,000	.021050	.002050	.....	.....	
15,200	76,000	.023000	.001950	.....	.....	
15,600	78,000	.025600	.002600	.....	.....	
16,000	80,000	.028050	.002450	.....	.....	
16,400	82,000	.031100	.003050	.....	.....	
16,800	84,500	.034000	.029000	.....	.....	
17,200	86,000	.038000	.004000	.....	.....	
17,600	88,000	.042000	.004000	.....	.....	
18,000	90,000	.0450	.0030	.....	.....	
18,400	92,000	.0550	.0100			
18,800	94,000	.0650	.0100	.....	.....	
19,200	96,000	.0800	.0150	.....	.....	
19,600	98,000	.1000	.0200	.....	.....	
19,740	98,700	.1150	.0150	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	98,700
Elastic limit per square inch of original section	do...	49,000
Elongation per inch after rupture	inch..	0.1550
Elongation per inch under strain at elastic limit	do...	.001600
Reduction in diameter at point of rupture	do...	.065
Reduction in area after rupture, per centum of original section		23.9
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	granular, 60 per centum; silky, 40 per centum	
Elongation of inch sections	" .21", ".10	

No. 2522.

Marks, ³²J₁₈
M T₅M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001050	.000200	0.	.....	
7,000	35,000	.001200	.000150	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001550	.000200	.....	.....	
9,200	46,000	.001600	.000050	.....	.....	
9,400	47,000	.001600	0.	.....	.....	
9,600	48,000	.001650	.000050	.....	.....	
9,800	49,000	.001800	.000150			Elastic limit.
10,000	50,000	.002000	.000200	.....	.....	
10,200	51,000	.002250	.000250	.....	.....	
10,400	52,000	.002500	.000250	.....	.....	
10,600	53,000	.003200	.000700	.....	.....	
10,800	54,000	.003550	.000350	.....	.....	
11,000	55,000	.003850	.000300	.....	.....	
11,200	56,000	.004550	.000700	.....	.....	
11,400	57,000	.005400	.000850	.....	.....	
11,600	58,000	.006050	.000650	.....	.....	
11,800	59,000	.006550	.000500	.....	.....	
12,000	60,000	.007400	.000850	.....	.....	
12,400	62,000	.009300	.001900	.....	.....	
12,800	64,000	.010650	.001350	.....	.....	
13,200	66,000	.012600	.001950	.....	.....	
13,600	68,000	.014250	.001650	.....	.....	
14,000	70,000	.016500	.002250	.....	.....	
14,400	72,000	.018550	.002050	.....	.....	
14,800	74,000	.020600	.002050	.....	.....	
15,200	76,000	.022600	.002000	.....	.....	
15,600	78,000	.025000	.002400	.....	.....	
16,000	80,000	.027250	.002250	.....	.....	
16,400	82,000	.029750	.002500	.....	.....	
16,800	84,000	.033100	.003350	.....	.....	
17,200	86,000	.036500	.003400	.....	.....	
17,600	88,000	.040000	.003500	.....	.....	
18,000	90,000	.046000	.006000	.....	.....	
18,400	92,000	.0500	.0040	.....	.....	
18,800	94,000	.0550	.0050	.....	.....	
19,200	96,000	.0600	.0050	.....	.....	
19,600	98,000	.0700	.0100	.....	.....	
20,000	100,000	.0950	.0250			Tensile strength.
20,080	100,400	.1200	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	100,400
Elastic limit per square inch of original section	do...	49,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do...	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture.....		1 inch from neck
Character of broken surface.....		silky, with traces of granulation
Elongation of inch sections.....		".13, ".27*

No. 650.

Marks, $\frac{32}{M} \frac{J_{18}}{T_6} \frac{M}{M}$
Length, 4'' .505.
Diameter, '' .798.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000267	.000167	0.	.....	
7,500	15,000	.000433	.000166	0.	.....	
10,000	20,000	.000600	.000167	0.	.....	
12,500	25,000	.000800	.000200	0.	.....	
15,000	30,000	.000967	.000167	0.	.....	
17,500	35,000	.001133	.000166	0.	.....	
20,000	40,000	.001300	.000167	.000033	.000033	
20,500	41,000	.001333	.000033	.....	.....	
21,000	42,000	.001400	.000067	.....	.....	
21,500	43,000	.001433	.000033	.....	.....	
22,000	44,000	.001467	.000034	.....	.....	
22,500	45,000	.001533	.000066	.....	.....	
23,000	46,000	.001567	.000034	.....	.....	
23,500	47,000	.001600	.000033	.....	.....	
24,000	48,000	.001667	.000067	.....	.....	
24,500	49,000	.001700	.000033	.....	.....	
25,000	50,000	.001767	.000067	.....	.....	
25,500	51,000	.001867	.000100			Elastic limit.
26,000	52,000	.002033	.000166	.....	.....	
26,500	53,000	.002167	.000134	.....	.....	
27,000	54,000	.002333	.000166	.....	.....	
27,500	55,000	.002633	.000300	.....	.....	
28,000	56,000	.002833	.000200	.....	.....	
28,500	57,000	.003267	.000434			Ultimate strength.
29,000	58,000	.004067	.000800	.....	.....	
51,320	102,640	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 51,000
Compression per inch under stress at elastic limit inch.. 0.001867
Ultimate strength per square inch of original section pounds.. 102,640
Manner of failure triple flexure

No. 2090.

Marks, ^{32 J₁₉}_{B T₁ M}

Diameter, ".505.

Sectional area, 20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.		0.	0.	Initial load.
1,000	5,000	.000100	0.000100	0.	-----	
2,000	10,000	.000200	.000100	0.	-----	
3,000	15,000	.000300	.000100	0.	-----	
4,000	20,000	.000450	.000150	0.	-----	
5,000	25,000	.000600	.000150	0.	-----	
6,000	30,000	.000800	.000200	0.	-----	
7,000	35,000	.000950	.000150	0.	-----	
8,000	40,000	.001150	.000200	— .000050	— .000050	
9,000	45,000	.001300	.000150	— .000050	0.	
9,200	46,000	.001300	0.	-----	-----	
9,400	47,000	.001350	.000050	-----	-----	
9,600	48,000	.001400	.000050	-----	-----	
9,800	49,000	.001400	0.	-----	-----	
10,000	50,000	.001450	.000050	— .000050	0.	
10,200	51,000	.001500	.000050	-----	-----	
10,400	52,000	.001500	0.	-----	-----	
10,600	53,000	.001550	.000050	-----	-----	
10,800	54,000	.001600	.000050	-----	-----	
11,000	55,000	.001650	.000050	— .000050	0.	
11,200	56,000	.001700	.000050	-----	-----	Elastic limit.
11,400	57,000	.001750	.000050	-----	-----	
11,600	58,000	.001750	0.	-----	-----	
11,800	59,000	.001800	.000050	-----	-----	
12,000	60,000	.001800	0.	— .000050	0.	
12,200	61,000	.001850	.000050	-----	-----	
12,400	62,000	.001850	0.	-----	-----	
12,600	63,000	.001900	.000050	-----	-----	
12,800	64,000	.002050	.000150	-----	-----	
13,000	65,000	.002150	.000100	-----	-----	
13,200	66,000	.002800	.000650	-----	-----	
13,400	67,000	.003800	.001000	-----	-----	
13,600	68,000	.004350	.000550	-----	-----	
13,800	69,000	.005000	.000650	-----	-----	
14,000	70,000	.005600	.000600	-----	-----	
14,400	72,000	.007400	.001800	-----	-----	
14,800	74,000	.008600	.001200	-----	-----	
15,200	76,000	.010150	.001550	-----	-----	
15,600	78,000	.011750	.001600	-----	-----	
16,000	80,000	.013600	.001850	-----	-----	Tensile strength.
16,400	82,000	.015600	.002000	-----	-----	
16,800	84,000	.017600	.002000	-----	-----	
17,200	86,000	.019350	.001750	-----	-----	
17,600	88,000	.021650	.002300	-----	-----	
18,000	90,000	.024550	.002900	-----	-----	
18,400	92,000	.026850	.002300	-----	-----	
18,800	94,000	.029500	.002650	-----	-----	
19,200	96,000	.032900	.003400	-----	-----	
19,600	98,000	.036500	.003600	-----	-----	
20,000	100,000	.040000	.003500	-----	-----	
20,400	102,000	.044750	.004750	-----	-----	
20,800	104,000	.0500	.005250	-----	-----	
21,200	106,000	.0600	.0100	-----	-----	
21,600	108,000	.0650	.0050	-----	-----	
21,960	109,800	.1050	.0400	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	109,800
Elastic limit per square inch of original section.....	do...	63,000
Elongation per inch after rupture.....	inch..	0.1850
Elongation per inch under strain at elastic limit.....	do...	.001900
Reduction in diameter at point of rupture.....	do...	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....	".05 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".22*, ".15	

No. 2091.

Marks, $\frac{32}{B} \frac{J_{12}}{T_2} M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000550	.000200	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000800	.000100	0.	.....	
7,000	35,000	.001000	.000200	0.	.....	
8,000	40,000	.001200	.000200	0.	.....	
9,000	45,000	.001350	.000150	0.	.....	
10,000	50,000	.001550	.000200	0.	.....	
11,000	55,000	.001700	.000150			Elastic limit.
11,200	56,000	.001700	0.	.....	.....	
11,400	57,000	.001750	.000050	.....	.....	
11,600	58,000	.001750	0.	.....	.....	
11,800	59,000	.006400	.004650	.....	.....	
12,000	60,000	.007200	.000800	.....	.....	
12,400	62,000	.008550	.001350	.....	.....	
12,800	64,000	.010200	.001650	.....	.....	
13,200	66,000	.011750	.001550	.....	.....	
13,600	68,000	.013600	.001850	.....	.....	
14,000	70,000	.015350	.001750	.....	.....	
14,400	72,000	.017650	.002300	.....	.....	
14,800	74,000	.020000	.002350	.....	.....	
15,200	76,000	.022500	.002500	.....	.....	
15,600	78,000	.024750	.002250	.....	.....	
16,000	80,000	.027500	.002750	.....	.....	
16,400	82,000	.030300	.002800	.....	.....	
16,800	84,000	.033250	.002950	.....	.....	
17,200	86,000	.037500	.004250	.....	.....	
17,600	88,000	.041000	.003500	.....	.....	
18,000	90,000	.045600	.004600			Tensile strength.
18,400	92,000	.051000	.005600	.....	.....	
18,800	94,000	.0600	.0090	.....	.....	
19,200	96,000	.0800	.0200	.....	.....	
19,600	98,000	.0900	.0100	.....	.....	
19,980	99,900	.1200	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	99,900
Elastic limit per square inch of original section	do...	58,000
Elongation per inch after rupture.....	inch..	0.2100
Elongation per inch under strain at elastic limit	do...	.001750
Reduction in diameter at point of rupture.....	do...	.135
Reduction in area after rupture, per centum of original section		46.2
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections	".29", ".13	

No. 612.

Marks, ^{32 J₁₉}
B T₃ M

Length, 4'' .495.

Diameter, '' .799.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000450	.000150	0.	.....	
10,000	20,000	.000600	.000150	0.	.....	
12,500	25,000	.000750	.000150	0.	.....	
15,000	30,000	.000850	.000100	0.	.....	
17,500	35,000	.001000	.000150	0.	.....	
20,000	40,000	.001150	.000150	0.	.....	
22,500	45,000	.001350	.000200	0.	.....	
23,000	46,000	.001350	0.	.....	.....	
23,500	47,000	.001400	.000050	.....	.....	
24,000	48,000	.001450	.000050	.....	.....	
24,500	49,000	.001500	.000050	.....	.....	
25,000	50,000	.001500	0.	.000050	.000050	
25,500	51,000	.001500	0.	.....	.....	
26,000	52,000	.001550	.000050	.....	.....	
26,500	53,000	.001600	.000050	.....	.....	
27,000	54,000	.001600	0.			Elastic limit.
27,500	55,000	.003550	.001850	.002450	.002500	
28,000	56,000	.004900	.001350	.....	.....	
28,500	57,000	.005500	.000600	.....	.....	
29,000	58,000	.006250	.000750	.....	.....	
29,500	59,000	.007000	.000750			Ultimate strength.
30,000	60,000	.007500	.000500	.005350	.002900	
49,900	99,800	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 51,000
 Compression per inch under stress at elastic limit.....inch.. 0.001600
 Ultimate strength per square inch of original section.....pounds.. 99,800
 Manner of failure.....triple flexure

No. 2252.

Marks, $\overset{32}{M} \overset{J_{20}}{T}, M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000500	.000100	0.	.....	
5,000	25,000	.000700	.000200	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001100	.000200	0.	.....	
8,000	40,000	.001350	.000250	0.	.....	
9,000	45,000	.001450	.000100	0.	.....	
10,000	50,000	.001550	.000100	0.		Elastic limit.
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.012000	.010350	.....	.....	
10,800	54,000	.012800	.000800	.....	.....	
11,000	55,000	.013500	.000700	.....	.....	
11,200	56,000	.014450	.000950	.....	.....	
11,400	57,000	.015000	.000550	.....	.....	
11,600	58,000	.016000	.001000	.....	.....	
11,800	59,000	.017250	.001250	.....	.....	
12,000	60,000	.018250	.001000	.....	.....	
12,400	62,000	.021000	.002750	.....	.....	
12,800	64,000	.023400	.002400	.....	.....	
13,200	66,000	.025800	.002400	.....	.....	
13,600	68,000	.029000	.003200	.....	.....	
14,000	70,000	.032000	.003000			Tensile strength.
14,400	72,000	.035500	.003500	.....	.....	
14,800	74,000	.039650	.004150	.....	.....	
15,200	76,000	.042500	.002850	.....	.....	
15,600	78,000	.053000	.010500	.....	.....	
16,000	80,000	.059000	.006000	.....	.....	
16,400	82,000	.0700	.0110	.....	.....	
16,800	84,000	.0800	.0100	.....	.....	
17,200	86,000	.0950	.0150	.....	.....	
17,600	88,000	.1200	.0250	.....	.....	
17,700	88,500	.1500	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	88,500
Elastic limit per square inch of original section	do	52,000
Elongation per inch after rupture	inch..	0.2450
Elongation per inch under strain at elastic limit	do	.001650
Reduction in diameter at point of rupture	do	.135
Reduction in area after rupture, per centum of original section		46.2
Position of rupture	1" from neck	
Character of broken surface	silky	
Elongation of inch sections	".16, '.33"	

No. 2253.

Marks, $\frac{32}{M} \frac{J_{20}}{T_2 M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000250	.000150	0.	-----	
3,000	15,000	.000400	.000150	0.	-----	
4,000	20,000	.000550	.000150	0.	-----	
5,000	25,000	.000650	.000100	0.	-----	
6,000	30,000	.000850	.000200	0.	-----	
7,000	35,000	.001000	.000150	0.	-----	
8,000	40,000	.001200	.000200	0.	-----	
9,000	45,000	.001450	.000250	.000050	.000050	
9,200	46,000	.001500	.000050	-----	-----	
9,400	47,000	.001550	.000050	-----	-----	
9,600	48,000	.001650	.000100	-----	-----	
9,800	49,000	.001700	.000050	-----	-----	
10,000	50,000	.001750	.000050	.000100	.000050	
10,200	51,000	.001800	.000050	-----	-----	
10,400	52,000	.001850	.000050	-----	-----	
10,600	53,000	.001900	.000050	-----	-----	
10,800	54,000	.001950	.000050	-----	-----	
11,000	55,000	.002000	.000050	-----	-----	
11,200	56,000	.002050	.000050	-----	-----	Elastic limit.
11,400	57,000	.002100	.000050	-----	-----	
11,600	58,000	.006250	.004150	-----	-----	
11,800	59,000	.017000	.010750	-----	-----	
12,000	60,000	.017750	.000750	-----	-----	
12,400	62,000	.019400	.001650	-----	-----	
12,800	64,000	.022250	.002850	-----	-----	
13,200	66,000	.024600	.002350	-----	-----	
13,600	68,000	.027100	.002500	-----	-----	
14,000	70,000	.030500	.003400	-----	-----	
14,400	72,000	.033550	.003050	-----	-----	Tensile strength.
14,800	74,000	.037400	.003850	-----	-----	
15,200	76,000	.041850	.004450	-----	-----	
15,600	78,000	.047250	.005400	-----	-----	
16,000	80,000	.053350	.006100	-----	-----	
16,400	82,000	.061000	.007650	-----	-----	
16,800	84,000	.0700	.0090	-----	-----	
17,200	86,000	.0850	.0150	-----	-----	
17,600	88,000	.1000	.0150	-----	-----	
17,920	89,600	.1600	.0600	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	89,600
Elastic limit per square inch of original section	do...	57,000
Elongation per inch after rupture	inch..	0.1700
Elongation per inch under strain at elastic limit	do...	.002100
Reduction in diameter at point of rupture	do...	.075
Reduction in area after rupture, per centum of original section		27.4
Position of rupture	".90 from neck	
Character of broken surface	silky	
Elongation of inch sections	".22*, ".122	

H. Ex. 31—19

No. 628.

Marks, $\overset{32}{M} \overset{J_{20}}{T_3} M$

Length, 4".505.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000233	.000133	0.	.....	
7,500	15,000	.000406	.000167	0.	.....	
10,000	20,000	.000533	.000133	0.	.....	
12,500	25,000	.000700	.000167	0.	.....	
15,000	30,000	.000833	.000133	0.	.....	
17,500	35,000	.000933	.000100	0.	.....	
20,000	40,000	.001167	.000234	0.	.....	
22,500	45,000	.001333	.000166	0.	.....	
23,000	46,000	.001333	0.	.....	.....	
23,500	47,000	.001367	.000034	.....	.....	
24,000	48,000	.001400	.000033	.....	.....	
24,500	49,000	.001433	.000033	.....	.....	
25,000	50,000	.001467	.000034	.000033	.000033	Elastic limit.
25,500	51,000	.001667	.000200	.....	.....	
26,000	52,000	.009333	.007666	.....	.....	
26,500	53,000	.009933	.000600	.....	.....	
27,000	54,000	.010333	.000400			Ultimate strength.
45,500	91,000	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 50,000
 Compression per inch under stress at elastic limit inch.. 0.001467
 Ultimate strength per square inch of original section pounds.. 91,000
 Manner of failure.....triple flexure

No. 2194.

Marks, $^{32}J_{21}$
B T₁ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000200	.000100	0.	-----	
3,000	15,000	.000350	.000150	0.	-----	
4,000	20,000	.000500	.000150	0.	-----	
5,000	25,000	.000600	.000100	0.	-----	
6,000	30,000	.000850	.000250	0.	-----	
7,000	35,000	.001000	.000150	0.	-----	
8,000	40,000	.001150	.000150	0.	-----	
9,000	45,000	.001300	.000150	0.	-----	
10,000	50,000	.001450	.000150	0.	-----	
10,200	51,000	.001500	.000050	-----	-----	
10,400	52,000	.001550	.000050	-----	-----	
10,600	53,000	.001600	.000050	-----	-----	Elastic limit.
10,800	54,000	.011000	.009400	-----	-----	
11,000	55,000	.011450	.000450	-----	-----	
11,200	56,000	.012050	.000600	-----	-----	
11,400	57,000	.012850	.000800	-----	-----	
11,600	58,000	.013650	.000800	-----	-----	
11,800	59,000	.014850	.001200	-----	-----	
12,000	60,000	.015850	.001000	-----	-----	
12,400	62,000	.018050	.002200	-----	-----	
12,800	64,000	.020350	.002300	-----	-----	
13,200	66,000	.023050	.002700	-----	-----	
13,600	68,000	.026500	.003450	-----	-----	
14,000	70,000	.029250	.002750	-----	-----	
14,400	72,000	.032750	.003500	-----	-----	
14,800	74,000	.037000	.004250	-----	-----	
15,200	76,000	.041750	.004750	-----	-----	
15,600	78,000	.047000	.005250	-----	-----	
16,000	80,000	.053000	.006000	-----	-----	
16,400	82,000	.0600	.0070	-----	-----	
16,800	84,000	.0650	.0050	-----	-----	
17,200	86,000	.0900	.0250	-----	-----	
17,600	88,000	.1100	.0200	-----	-----	
17,680	88,400	.1500	.0400	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	88,400
Elastic limit per square inch of original section	do...	53,000
Elongation per inch after rupture	inch..	0.1800
Elongation per inch under strain at elastic limit.....	do...	.001600
Reduction in diameter at point of rupture.....	do...	.055
Reduction in area after rupture, per centum of original section.....		20.5
Position of rupture	".10 from neck	
Character of broken surface.....	silky; flaky	
Elongation of inch sections.....	".22*, ".14	

No. 2195.

Marks, $\frac{32}{B} \frac{J_{21}}{T_2} M$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000450	.000100	0.	.....	
5,000	25,000	.000600	.000150	0.	.....	
6,000	30,000	.000800	.000200	0.	.....	
7,000	35,000	.001000	.000200	0.	.....	
8,000	40,000	.001200	.000200	0.	.....	
9,000	45,000	.001350	.000150	0.	.....	
10,000	50,000	.001550	.000200	0.		Elastic limit.
10,200	51,000	.008600	.007050	.....	.....	
10,400	52,000	.009350	.000750	.....	.....	
10,600	53,000	.010100	.000750	.....	.....	
10,800	54,000	.011100	.001000	.....	.....	
11,000	55,000	.012000	.000900	.....	.....	
11,200	56,000	.013150	.001150	.....	.....	
11,400	57,000	.014350	.001200	.....	.....	
11,600	58,000	.015000	.000650	.....	.....	
11,800	59,000	.016500	.001500	.....	.....	
12,000	60,000	.017350	.000850	.....	.....	
12,400	62,000	.019500	.002150	.....	.....	
12,800	64,000	.021850	.002350	.....	.....	
13,200	66,000	.023600	.003750	.....	.....	
13,600	68,000	.029000	.003400	.....	.....	
14,000	70,000	.032000	.003000	.....	.....	
14,400	72,000	.036500	.004500	.....	.....	
14,800	74,000	.040100	.003600	.....	.....	
15,200	76,000	.046000	.005900	.....	.....	
15,600	78,000	.052000	.006000	.....	.....	
16,000	80,000	.0600	.0080	.....	.....	
16,400	82,000	.0700	.0100	.....	.....	
16,800	84,000	.0850	.0150	.....	.....	
17,200	86,000	.1150	.0300	.....	.....	
17,350	86,750	.1550	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	86,750
Elastic limit per square inch of original section.....	do...	50,000
Elongation per inch after rupture.....	inch..	0.2400
Elongation per inch under strain at elastic limit.....	do...	.001550
Reduction in diameter at point of rupture.....	do...	.095
Reduction in area after rupture, per centum of original section.....		34.0
Position of rupture.....	1 inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	" .25, * ".23	

No. 613.

Marks, ³²J₂₁
_{B T₃ M}
 Length, 4'''.498.
 Diameter, '''.798.
 Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000200	.000200	0.	-----	
5,000	10,000	.000300	.000100	0.	-----	
7,500	15,000	.000500	.000200	0.	-----	
10,000	20,000	.000700	.000200	0.	-----	
12,500	25,000	.000800	.000100	0.	-----	
15,000	30,000	.001000	.000200	.000100	.000100	
17,500	35,000	.001250	.000250	.000200	.000100	
20,000	40,000	.001500	.000250	.000250	.000050	
20,500	41,000	.001500	0.	-----	-----	
21,000	42,000	.001550	.000050	-----	-----	
21,500	43,000	.001650	.000100	-----	-----	
22,000	44,000	.001700	.000050	-----	-----	
22,500	45,000	.001750	.000050	.000300	.000050	
23,000	46,000	.001750	0.	-----	-----	Elastic limit.
23,500	47,000	.001850	.000100	-----	-----	
24,000	48,000	.001950	.000100	-----	-----	
24,500	49,000	.002050	.000100	-----	-----	
25,000	50,000	.002250	.000200	.000000	.000300	
25,500	51,000	.008500	.006250	.006500	.005900	
26,000	52,000	.008750	.000250	.006750	.000250	
26,500	53,000	.008950	.000200	.007000	.000250	
27,000	54,000	.009250	.000300	.007250	.000250	
27,500	55,000	.009700	.000450	.007700	.000450	
42,800	85,600	-----	-----	-----	-----	Ultimate strength.

General summary.

Elastic limit per square inch of original sectionpounds.. 49,000
 Compression per inch under stress at elastic limitinch.. 0.002050
 Ultimate strength per square inch of original sectionpounds.. 85,600
 Manner of failuretriple flexure

[Additional specimens.]

No. 2418.

Marks, $\frac{32}{B} \frac{J_2}{T_4} M$
Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000200	.000050	0.	.....	
3,000	15,000	.000500	.000300	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000900	.000100	0.	.....	
7,000	35,000	.001100	.000200	.....	.....	
8,000	40,000	.001350	.000250	.....	.....	
8,200	41,000	.001400	.000050	.....	.....	
8,400	42,000	.001450	.000050			Elastic limit.
8,600	43,000	.001500	.000050	.....	.....	
8,800	44,000	.001550	.000050	.....	.....	
9,000	45,000	.001600	.000050	.....	.....	
9,200	46,000	.001650	.000050	.....	.....	
9,400	47,000	.001850	.000200	.....	.....	
9,600	48,000	.002100	.000250	.....	.....	
9,800	49,000	.002300	.000200	.....	.....	
10,000	50,000	.002700	.000400	.....	.....	
10,200	51,000	.002900	.000200	.....	.....	
10,400	52,000	.003300	.000400	.....	.....	
10,600	53,000	.003900	.000600	.....	.....	
10,800	54,000	.004550	.000650	.....	.....	
11,000	55,000	.005150	.000600	.....	.....	
11,200	56,000	.005850	.000700	.....	.....	
11,400	57,000	.006600	.000750	.....	.....	
11,600	58,000	.007450	.000850	.....	.....	
11,800	59,000	.008250	.000800	.....	.....	
12,000	60,000	.009250	.001000	.....	.....	
12,400	62,000	.010750	.001500			Tensile strength.
12,800	64,000	.012850	.002100	.....	.....	
13,200	66,000	.014750	.001900	.....	.....	
13,600	68,000	.016800	.002050	.....	.....	
14,000	70,000	.018800	.002000	.....	.....	
14,400	72,000	.021550	.002750	.....	.....	
14,800	74,000	.023750	.002200	.....	.....	
15,200	76,000	.026200	.002450	.....	.....	
15,600	78,000	.029100	.002900	.....	.....	
16,000	80,000	.032150	.003050	.....	.....	
16,400	82,000	.035850	.003700	.....	.....	
16,800	84,000	.040750	.004900	.....	.....	
17,200	86,000	.046000	.005250	.....	.....	
17,600	88,000	.0500	.0040	.....	.....	
18,000	90,000	.0550	.0050	.....	.....	
18,400	92,000	.0650	.0100	.....	.....	
18,800	94,000	.0850	.0200	.....	.....	
19,110	95,550	.1350	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	95,550
Elastic limit per square inch of original section.....	do...	46,000
Elongation per inch after rupture.....	inch..	0.2200
Elongation per inch under strain at elastic limit.....	do...	.001650
Reduction in diameter at point of rupture.....	do...	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	1".55 from neck; oblique	
Character of broken surface.....	silky	
Elongation of inch sections.....	".28*, ".16	

No. 2419.

Marks, $\frac{32}{B} \frac{J_{21}}{T_5 M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.		
2,000	10,000	.000250	.000150	0.		
3,000	15,000	.000400	.000150	0.		
4,000	20,000	.000600	.000200	0.		
5,000	25,000	.000750	.000150	0.		
6,000	30,000	.000900	.000150	0.		
7,000	35,000	.001110	.000200	0.		
8,000	40,000	.001250	.000150	0.		
9,000	45,000	.001500	.000250	0.		
9,200	46,000	.001600	.000100			Elastic limit.
9,400	47,000	.001650	.000050	.....	.....	
9,600	48,000	.001900	.000250	.....	.....	
9,800	49,000	.002350	.000450	.....	.....	
10,000	50,000	.002750	.000400	.....	.....	
10,200	51,000	.003350	.000600	.....	.....	
10,400	52,000	.004100	.000750	.....	.....	
10,600	53,000	.004750	.000650	.....	.....	
10,800	54,000	.005500	.000750	.....	.....	
11,000	55,000	.006250	.000750	.....	.....	
11,200	56,000	.007250	.001000	.....	.....	
11,400	57,000	.008000	.000750	.....	.....	
11,600	58,000	.009000	.001000	.....	.....	
11,800	59,000	.009750	.000750	.....	.....	
12,000	60,000	.010600	.000850	.....	.....	
12,400	62,000	.012850	.002250	.....	.....	
12,800	64,000	.015000	.002150	.....	.....	
13,200	66,000	.017250	.002250	.....	.....	
13,600	68,000	.019550	.002300	.....	.....	
14,000	70,000	.022000	.002450	.....	.....	
14,400	72,000	.024550	.002550	.....	.....	
14,800	74,000	.027250	.002700	.....	.....	
15,200	76,000	.030250	.003000	.....	.....	
15,600	78,000	.033550	.003300	.....	.....	
16,000	80,000	.037500	.003950	.....	.....	
16,400	82,000	.041500	.004000	.....	.....	
16,800	84,000	.047100	.005600	.....	.....	
17,200	86,000	.0550	.0079	.....	.....	
17,600	88,000	.0600	.0050	.....	.....	
18,000	90,000	.0700	.0100	.....	.....	
18,400	92,000	.0850	.0150	.....	.....	
18,510	92,550	.1300	.0450			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	92,550
Elastic limit per square inch of original section.....	do...	47,000
Elongation per inch after rupture.....	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do...	.001650
Reduction in diameter at point of rupture.....	do...	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....	1".15 from neck; oblique	
Character of broken surface.....	silky	
Elongation of inch sections.....	".28*, ".15	

No. 652.

Marks, $\frac{32}{B} \frac{J_{21}}{T_6} M$

Length, 4'' .506.

Diameter, '' .799.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000133	.000133	0.	.....	
5,000	10,000	.000300	.000167	0.	.....	
7,500	15,000	.000467	.000167	0.	.....	
10,000	20,000	.000633	.000166	0.	.....	
12,500	25,000	.000833	.000200	0.	.....	
15,000	30,000	.001000	.000167	0.	.....	
17,500	35,000	.001167	.000167	.000033	.000033	
20,000	40,000	.001333	.000166	.000067	.000034	
20,500	41,000	.001367	.000034	.....	.....	
21,000	42,000	.001400	.000033	.....	.....	
21,500	43,000	.001467	.000067	.....	.....	
22,000	44,000	.001567	.000100	.....	.....	
22,500	45,000	.001600	.000033	.....	.....	
23,000	46,000	.001667	.000067	.....	.....	
23,500	47,000	.001767	.000100	.....	.....	
24,000	48,000	.001867	.000100			Elastic limit.
24,500	49,000	.002033	.000166	.....	.....	
25,000	50,000	.002233	.000200	.....	.....	
25,500	51,000	.003533	.001300	.....	.....	
26,000	52,000	.002767	.001234	.....	.....	
26,500	53,000	.002967	.000200	.....	.....	
27,000	54,000	.003267	.000300	.....	.....	
27,500	55,000	.003733	.000466	.....	.....	
28,000	56,000	.004067	.000334	.....	.....	
48,800	97,600					Ultimate strength.

General summary.

Elastic limit per square inch of original section.....pounds.. 48,000
 Compression per inch under stress at elastic limit.....inch.. .001867
 Ultimate strength per square inch of original sectionpounds.. 97,600
 Manner of failure.....triple flexure

NEW JACKET No. 21.

No. 2698.

Marks, ^{32 J₂₁}_{M T₇ M}Diameter, ¹¹/₁₆.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001450	.000200	.....	.....	
10,000	50,000	.001700	.000250			Elastic limit.
10,200	51,000	.001700	0.	.....	.....	
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.001800	.000050	.....	.....	
10,800	54,000	.001900	.000100	.....	.....	
11,000	55,000	.001950	.000050	.....	.....	
11,200	56,000	.002000	.000050	.....	.....	
11,400	57,000	.002050	.000050	.....	.....	
11,600	58,000	.004600	.002550	.....	.....	
11,800	59,000	.005500	.000900	.....	.....	
12,000	60,000	.006250	.000750	.....	.....	
12,400	62,000	.007600	.001350	.....	.....	
12,800	64,000	.009250	.001650	.....	.....	
13,200	66,000	.010000	.000750	.....	.....	
13,600	68,000	.011500	.001500	.....	.....	
14,000	70,000	.013000	.001500	.....	.....	
14,400	72,000	.014750	.001750	.....	.....	
14,800	74,000	.016250	.001500	.....	.....	
15,200	76,000	.018100	.001850	.....	.....	
15,600	78,000	.019500	.001400	.....	.....	
16,000	80,000	.021500	.002000			Tensile strength.
16,400	82,000	.023150	.001650	.....	.....	
16,800	84,000	.025500	.002350	.....	.....	
17,200	86,000	.027500	.002000	.....	.....	
17,600	88,000	.030000	.002500	.....	.....	
18,000	90,000	.032500	.002500	.....	.....	
18,400	92,000	.035000	.002500	.....	.....	
18,800	94,000	.038750	.003750	.....	.....	
19,200	96,000	.042000	.003250	.....	.....	
19,600	98,000	.046500	.004500	.....	.....	
20,000	100,000	.0500	.0035	.....	.....	
20,400	102,000	.0550	.0050	.....	.....	
20,800	104,000	.0600	.0050	.....	.....	
21,200	106,000	.0700	.0100	.....	.....	
21,580	107,900	.1100	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	107,900
Elastic limit per square inch of original section	do ..	57,000
Elongation per inch after rupture	inch..	0.1400
Elongation per inch under strain at elastic limit	do...	.002050
Reduction in diameter at point of rupture	do...	.055
Reduction in area after rupture, per centum of original section		20.5
Position of rupture	"	.45 from neck
Character of broken surface		granular ; dull spot at circumference
Elongation of inch sections	"	.18*, ".10

No. 2699.

Marks, $^{32}J_{21}$
M T₈ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001400	.000200	.....	.....	
10,000	50,000	.001550	.000150	.....	.....	
10,200	51,000	.001550	0.	.....	.....	
10,400	52,000	.001600	.000050	.....	.....	
10,600	53,000	.001650	.000050	.....	.....	
10,800	54,000	.001650	0.	.....	.....	
11,000	55,000	.001700	.000050	.....	.....	
11,200	56,000	.001750	.000050	.....	.....	
11,400	57,000	.001800	.000050	.....	.....	Elastic limit.
11,600	58,000	.003850	.002050	.....	.....	
11,800	59,000	.006000	.002150	.....	.....	
12,000	60,000	.006500	.000500	.....	.....	
12,400	62,000	.008000	.001500	.....	.....	
12,800	64,000	.009500	.001500	.....	.....	
13,200	66,000	.010950	.001450	.....	.....	
13,600	68,000	.012000	.001050	.....	.....	
14,000	70,000	.014000	.002000	.....	.....	
14,400	72,000	.015200	.001200	.....	.....	
14,800	74,000	.016750	.001550	.....	.....	
15,200	76,000	.018500	.001750	.....	.....	
15,600	78,000	.020000	.001500	.....	.....	
16,000	80,000	.021500	.001500	.....	.....	
16,400	82,000	.023250	.001750	.....	.....	
16,800	84,000	.025750	.002500	.....	.....	
17,200	86,000	.028000	.002250	.....	.....	
17,600	88,000	.030500	.002500	.....	.....	
18,000	90,000	.033750	.003250	.....	.....	
18,400	92,000	.036500	.002750	.....	.....	
18,800	94,000	.040100	.003600	.....	.....	
19,200	96,000	.043500	.003400	.....	.....	
19,600	98,000	.048500	.005000	.....	.....	
20,000	100,000	.0550	.0065	.....	.....	
20,400	102,000	.0600	.0050	.....	.....	
20,800	104,000	.0700	.0100	.....	.....	
21,200	106,000	.0800	.0100	.....	.....	
21,480	107,400	.1150	.0350	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original sectionpounds.. 107,400
 Elastic limit per square inch of original sectiondo... 57,000
 Elongation per inch after rupture.....inch.. 0.2250
 Elongation per inch under strain at elastic limit.....do... .001800
 Reduction in diameter at point of rupturedo.. .105
 Reduction in area after rupture, per centum of original section 37.1
 Position of rupture ".23 from middle of stem
 Character of broken surface..... silky
 Elongation of inch sections ".17, ".28*

No. 669.

Marks, ^{32 J₂₁}_{M T₉ M}Length, 4''¹¹.506.Diameter, ''¹¹.798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000167	.000167	0.	.....	
5,000	10,000	.000333	.000166	0.	.....	
7,500	15,000	.000500	.000167	0.	.....	
10,000	20,000	.000667	.000167	0.	.....	
12,500	25,000	.000833	.000166	0.	.....	
15,000	30,000	.001000	.000167	0.	.....	
17,500	35,000	.001167	.000167	0.	.....	
20,000	40,000	.001333	.000166	0.	.....	
20,500	41,000	.001367	.000034	.....	.....	
21,000	42,000	.001400	.000033	.....	.....	
21,500	43,000	.001433	.000033	.....	.....	
22,000	44,000	.001467	.000034	.....	.....	
22,500	45,000	.001500	.000033	.....	.....	
23,000	46,000	.001533	.000033	.....	.....	
23,500	47,000	.001567	.000034	.....	.....	
24,000	48,000	.001600	.000033	.....	.....	
24,500	49,000	.001633	.000033	.....	.....	
25,000	50,000	.001667	.000034	.....	.....	
25,500	51,000	.001700	.000033	.....	.....	
26,000	52,000	.001733	.000033	.....	.....	
26,500	53,000	.001800	.000067			Elastic limit.
27,000	54,000	.001833	.000033	.....	.....	
27,500	55,000	.001867	.000034	.....	.....	
28,000	56,000	.001900	.000033	.....	.....	
28,500	57,000	.002933	.001033	.....	.....	
29,000	58,000	.003800	.000867			Ultimate strength.
29,500	59,000	.004333	.000533	.....	.....	
30,000	60,000	.005100	.000767	.....	.....	
50,960	101,920	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 56,000
 Compression per inch under stress at elastic limit inch.. 0.001900
 Ultimate strength per square inch of original section pounds.. 101,920
 Manner of failure triple flexure

[Additional specimens from new jacket.]

No. 2616.

Marks, $\begin{smallmatrix} 32 & R_{21} & J \\ M & J_{10} & M \end{smallmatrix}$

Diameter, ".506.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000600	.000100	0.	.....	
6,000	30,000	.000750	.000150	0.	.....	
7,000	35,000	.000950	.000200	0.	.....	
8,000	40,000	.001150	.000200	0.	.....	
8,200	41,000	.001200	.000050	.....	.....	
8,400	42,000	.001250	.000050	.....	.....	
8,600	43,000	.001300	.000050	.....	.....	
8,800	44,000	.001350	.000050	.....	.....	
9,000	45,000	.001400	.000050	.....	.....	
9,200	46,000	.001450	.000050	.....	.....	
9,400	47,000	.001500	.000050	.....	.....	
9,600	48,000	.001500	0.	.....	.....	
9,800	49,000	.001550	.000050	.....	.....	
10,000	50,000	.001650	.000100	.....	.....	
10,200	51,000	.001650	0.	.....	.....	
10,400	52,000	.001700	.000050			Elastic limit.
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001750	0.	.....	.....	
11,000	55,000	.001800	.000050	.....	.....	
11,200	56,000	.005750	.003950	.....	.....	
11,400	57,000	.006600	.000850	.....	.....	
11,600	58,000	.007050	.000450	.....	.....	
11,800	59,000	.007800	.000750	.....	.....	
12,000	60,000	.008400	.000600	.....	.....	
12,400	62,000	.009700	.001300	.....	.....	
12,800	64,000	.011150	.001450	.....	.....	
13,200	66,000	.012650	.001500	.....	.....	
13,600	68,000	.014550	.001900	.....	.....	
14,000	70,000	.016000	.001450	.....	.....	
14,400	72,000	.017900	.001900	.....	.....	
14,800	74,000	.019500	.001600	.....	.....	
15,200	76,000	.021500	.002000	.....	.....	
15,600	78,000	.023500	.002000	.....	.....	
16,000	80,000	.026000	.002500	.....	.....	
16,400	82,000	.029000	.003000	.....	.....	
16,800	84,000	.031550	.002550	.....	.....	
17,200	86,000	.034750	.003200	.....	.....	
17,600	88,000	.037850	.003100	.....	.....	
18,000	90,000	.041750	.003900	.....	.....	
18,400	92,000	.045750	.004000	.....	.....	
18,800	94,000	.0500	.004250	.....	.....	
19,200	96,000	.0550	.0050	.....	.....	
19,600	98,000	.0650	.0100	.....	.....	
20,000	100,000	.0800	.0150	.....	.....	
20,400	102,000	.1000	.0200	.....	.....	
20,490	102,450	.1350	.0350			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	102,450
Elastic limit per square inch of original section	do...	55,000
Elongation per inch after rupture	inch..	0.2350
Elongation per inch under strain at elastic limit	do...	.001800
Reduction in diameter at point of rupture	do...	.136
Reduction in area after rupture, per centum of original section		46.2
Position of rupture	inch from neck	3
Character of broken surface	silky	
Elongation of inch sections	" .34*, ".13	

No. 2617.

Marks, $\frac{22}{M} \frac{R_{21}}{T_{11}} \frac{J}{M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000350	.000100	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000800	.000150	0.	.....	
7,000	35,000	.001000	.000200	0.	.....	
8,000	40,000	.001150	.000150	0.	.....	
9,000	45,000	.001350	.000200	.....	.....	
10,000	50,000	.001550	.000200			Elastic limit.
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001600	0.	.....	.....	
10,600	53,000	.001650	.000050	.....	.....	
10,800	54,000	.001700	.000050	.....	.....	
11,000	55,000	.001850	.000150	.....	.....	
11,200	56,000	.006000	.004150	.....	.....	
11,400	57,000	.006700	.000700	.....	.....	
11,600	58,000	.007100	.000400	.....	.....	
11,800	59,000	.007750	.000650	.....	.....	
12,000	60,000	.008650	.000900	.....	.....	
12,400	62,000	.010000	.001350	.....	.....	
12,800	64,000	.011400	.001400	.....	.....	
13,200	66,000	.013000	.001600	.....	.....	
13,600	68,000	.014800	.001800	.....	.....	
14,000	70,000	.016400	.001600	.....	.....	
14,400	72,000	.018000	.001600	.....	.....	
14,800	74,000	.019850	.001850	.....	.....	
15,200	76,000	.021800	.001950	.....	.....	
15,600	78,000	.024000	.002200	.....	.....	
16,000	80,000	.026350	.002350	.....	.....	
16,400	82,000	.029100	.002750	.....	.....	
16,800	84,000	.032000	.002900	.....	.....	
17,200	86,000	.035050	.003050	.....	.....	
17,600	88,000	.038300	.003250	.....	.....	
18,000	90,000	.043000	.004700	.....	.....	
18,400	92,000	.047500	.004500	.....	.....	
18,800	94,000	.052000	.004500	.....	.....	
19,200	96,000	.0550	.0030	.....	.....	
19,600	98,000	.0650	.0100	.....	.....	
20,000	100,000	.0800	.0150	.....	.....	
20,400	102,000	.1050	.0250	.....	.....	
20,420	102,100	.1550	.0500			Tensile strength.

General summary.

Tensile strength per square inch of original section pounds.. 102,100
 Elastic limit per square inch of original section do... 54,000
 Elongation per inch after rupture inch.. 0.2350
 Elongation per inch under strain at elastic limit do... .001700
 Reduction in diameter at point of rupture do... .085
 Reduction in area after rupture, per centum of original section 30.7
 Position of rupture 1 inch from neck
 Character of broken surface .. granular; silky spot at circumference; opened cracks in surface of stem
 Elongation of inch sections ".19, ".28*

No. 678.

Marks, $\frac{32}{M} R_{21} J$
 $\frac{M}{T_{12}} M$

Length, 4".504.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000167	.000167	0.	.....	
5,000	10,000	.000333	.000166	0.	.....	
7,500	15,000	.000500	.000167	0.	.....	
10,000	20,000	.000667	.000167	0.	.....	
12,500	25,000	.000832	.000166	0.	.....	
15,000	30,000	.001000	.000167	0.	.....	
17,500	35,000	.001200	.000200	.000067	.000067	
20,000	40,000	.001367	.000167	.....	.....	
20,500	41,000	.001400	.000033	.....	.....	
21,000	42,000	.001467	.000067	.....	.....	
21,500	43,000	.001500	.000033	.....	.....	
22,000	44,000	.001533	.000033	.....	.....	
22,500	45,000	.001567	.000034	.....	.....	
23,000	46,000	.001633	.000066	.....	.....	
23,500	47,000	.001667	.000034	.....	.....	
24,000	48,000	.001700	.000033	.....	.....	
24,500	49,000	.001767	.000067	.....	.....	
25,000	50,000	.001833	.000066	.....	.....	
25,500	51,000	.001867	.000034	.....	.....	
26,000	52,000	.001900	.000033	.....	.....	
26,500	53,000	.002000	.000100	.....	.....	
27,000	54,000	.002067	.000067			Elastic limit.
27,500	55,000	.002300	.000233	.....	.....	
28,000	56,000	.006833	.004533	.....	.....	
28,500	57,000	.008267	.001434	.....	.....	
29,000	58,000	.009500	.001233			Ultimate strength.
48,580	97,160	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 54,000
 Compression per inch under stress at elastic limit inch.. 0.002067
 Ultimate strength per square inch of original section pounds.. 97,160
 Manner of failure triple flexure

No. 2254.

Marks, $\frac{32}{M} \frac{J_{22}}{T_1 M}$

Diameter, ".505.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	— .000050	— .000050	
2,000	10,000	.000250	.000150	— .000050	0.	
3,000	15,000	.000400	.000150	— .000100	— .000050	
4,000	20,000	.000550	.000150	— .000100	0.	
5,000	25,000	.000700	.000150	— .000100	0.	
6,000	30,000	.000850	.000150	— .000100	0.	
7,000	35,000	.001050	.000200	— .000100	0.	
8,000	40,000	.001250	.000200	— .000100	0.	
9,000	45,000	.001400	.000150	— .000100	0.	
10,000	50,000	.001600	.000200	— .000100	0.	
10,200	51,000	.001600	0.	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001650	0.	.....	.....	
10,800	54,000	.001700	.000050	.....	.....	
11,000	55,000	.001750	.000050	.....	.....	
11,200	56,000	.001800	.000050	.....	.....	
11,400	57,000	.001800	0.	.....	.....	
11,600	58,000	.001850	.000050	.....	.....	
11,800	59,000	.001850	0.	.....	.....	
12,000	60,000	.001900	.000050			Elastic limit.
12,200	61,000	.001950	.000050	.....	.....	
12,400	62,000	.002000	.000050	.....	.....	
12,600	63,000	.002750	.000750	.....	.....	
12,800	64,000	.003350	.000600	.....	.....	
13,000	65,000	.004750	.001400	.....	.....	
13,200	66,000	.007000	.002250	.....	.....	
13,400	67,000	.007750	.000750	.....	.....	
13,600	68,000	.008400	.000650	.....	.....	
13,800	69,000	.009000	.000600	.....	.....	
14,000	70,000	.009750	.000750	.....	.....	
14,400	72,000	.011250	.001500	.....	.....	
14,800	74,000	.012750	.001500	.....	.....	
15,200	76,000	.014750	.002000	.....	.....	
15,600	78,000	.016100	.001350	.....	.....	
16,000	80,000	.018150	.002050	.....	.....	
16,400	82,000	.020250	.002100	.....	.....	
16,800	84,000	.022500	.002250	.....	.....	
17,200	86,000	.024500	.002000	.....	.....	
17,600	88,000	.026400	.001900	.....	.....	
18,000	90,000	.029000	.002600			Tensile strength.
18,400	92,000	.032450	.003450	.....	.....	
18,800	94,000	.034500	.002050	.....	.....	
19,200	96,000	.037500	.003000	.....	.....	
19,600	98,000	.041250	.003750	.....	.....	
20,000	100,000	.046500	.005250	.....	.....	
20,400	102,000	.0500	.0035	.....	.....	
20,800	104,000	.0600	.0100	.....	.....	
21,200	106,000	.0700	.0100	.....	.....	
21,600	108,000	.0950	.0250	.....	.....	
21,810	109,050	.1200	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	109,050
Elastic limit per square inch of original section	do...	62,000
Elongation per inch after rupture	inch..	0.1950
Elongation per inch under strain at elastic limit	do...	.002000
Reduction in diameter at point of rupture	do...	.085
Reduction in area after rupture, per centum of original section		30.7
Position of rupture	".6 from neck	
Character of broken surface	granular, radiating from dull metal at circumference	
Elongation of inch sections	".27* ".12	

No. 2255.

Marks, ^{32 J₂₂}
M T₂ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	—	
2,000	10,000	.000250	.000160	— .000050	— .000050	
3,000	15,000	.000350	.000100	— .000100	— .000050	
4,000	20,000	.000500	.000150	— .000100	0.	
5,000	25,000	.000650	.000150	— .000150	— .000050	
6,000	30,000	.000750	.000100	— .000200	— .000050	
7,000	35,000	.000850	.000100	— .000200	0.	
8,000	40,000	.001000	.000150	— .000200	0.	
9,000	45,000	.001200	.000200	— .000200	0.	
10,000	50,000	.001350	.000150	— .000200	0.	Elastic limit.
11,000	55,000	.001500	.000150	—	—	
11,200	56,000	.001550	.000050	—	—	
11,400	57,000	.001600	.000050	—	—	
11,600	58,000	.001700	.000100	—	—	
11,800	59,000	.001750	.000050	—	—	
12,000	60,000	.007000	.005250	—	—	
12,200	61,000	.007750	.000750	—	—	
12,400	62,000	.008250	.000500	—	—	
12,600	63,000	.009000	.000750	—	—	
12,800	64,000	.010000	.001000	—	—	
13,200	66,000	.011000	.001000	—	—	
13,600	68,000	.013000	.002000	—	—	
14,000	70,000	.014600	.001600	—	—	
14,400	72,000	.016500	.001900	—	—	
14,800	74,000	.018000	.001500	—	—	
15,200	76,000	.020000	.002000	—	—	
15,600	78,000	.022250	.002250	—	—	
16,000	80,000	.024150	.001900	—	—	
16,400	82,000	.026750	.002600	—	—	
16,800	84,000	.029750	.003000	—	—	
17,200	86,000	.032000	.002250	—	—	
17,600	88,000	.035500	.003500	—	—	
18,000	90,000	.039250	.003750	—	—	
18,400	92,000	.044250	.005000	—	—	
18,800	94,000	.050000	.005750	—	—	
19,200	96,000	.0600	.0100	—	—	
19,600	98,000	.0700	.0100	—	—	
20,000	100,000	.1800	.0100	—	—	
20,400	102,000	.1000	.0200	—	—	
20,490	102,450	.1300	.0300	—	—	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	102,450
Elastic limit per square inch of original section	do...	59,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit	do...	.001750
Reduction in diameter at point of rupture.....	do...	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	".60 from neck	
Character of broken surface.....	silky; traces of granulation	
Elongation of inch sections	".30*, ".10	

No. 629.

Marks, $^{32}J_{22}$
 MT_3M

Length, 4'.502.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000133	.000133	0.	-----	
5,000	10,000	.000267	.000134	0.	-----	
7,500	15,000	.000400	.000133	0.	-----	
10,000	20,000	.000567	.000167	0.	-----	
12,500	25,000	.000700	.000133	0.	-----	
15,000	30,000	.000867	.000167	— .000033	— .000033	
17,500	35,000	.001000	.000133	— .000067	— .000034	
20,000	40,000	.001167	.000167	— .000067	0.	
22,500	45,000	.001300	.000133	— .000067	0.	
23,000	46,000	.001333	.000033	-----	-----	
23,500	47,000	.001333	0.	-----	-----	
24,000	48,000	.001367	.000034	-----	-----	
24,500	49,000	.001400	.000033	-----	-----	
25,000	50,000	.001400	0.	— .000100	— .000033	
25,500	51,000	.001400	0.	-----	-----	
26,000	52,000	.001433	.000033	-----	-----	
26,500	53,000	.001467	.000034	-----	-----	
27,000	54,000	.001433	— .000034	-----	-----	
27,500	55,000	.001400	— .000033	— .000167	— .000067	Elastic limit.
28,000	56,000	.002400	.001000	-----	-----	
28,500	57,000	.004200	.001800	-----	-----	
29,000	58,000	.004900	.000700	-----	-----	Ultimate strength.
48,180	96,360	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section pounds.. 55,000
 Compression per inch under stress at elastic limit..... inch.. 0.001400
 Ultimate strength per square inch of original section..... pounds.. 96,360
 Manner of failure triple flexure

H. Ex. 31—20

No. 2276.

Marks, ^{32 J₂₃}_{B T₁ M}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001400	.000200	0.	.....	
10,000	50,000	.001650	.000250	.....	.....	
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.001700	0.	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001800	.000050	.....	.....	
11,000	55,000	.001800	0.	.....	.....	
11,200	56,000	.001850	.000050			Elastic limit.
11,400	57,000	.006750	.004900	.....	.....	
11,600	58,000	.007700	.000950	.....	.....	
11,800	59,000	.008700	.001000	.....	.....	
12,000	60,000	.009750	.001050	.....	.....	
12,400	62,000	.011150	.001400	.....	.....	
12,800	64,000	.012700	.001550	.....	.....	
13,200	66,000	.014750	.002050	.....	.....	
13,600	68,000	.017000	.002250	.....	.....	
14,000	70,000	.019350	.002350	.....	.....	
14,400	72,000	.021500	.002150	.....	.....	
14,800	74,000	.024000	.002500	.....	.....	
15,200	76,000	.026500	.002500	.....	.....	
15,600	78,000	.029700	.003200	.....	.....	
16,000	80,000	.033000	.003300	.....	.....	
16,400	82,000	.036500	.003500	.....	.....	
16,800	84,000	.040450	.003950	.....	.....	
17,200	86,000	.045850	.005400	.....	.....	
17,600	88,000	.051250	.005400	.....	.....	
18,000	90,000	.0600	.008750			Tensile strength.
18,400	92,000	.0750	.0150	.....	.....	
18,800	94,000	.0950	.0200	.....	.....	
19,000	95,000	.1350	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	95,000
Elastic limit per square inch of original section	do...	56,000
Elongation per inch after rupture	inch..	0.2100
Elongation per inch under strain at elastic limit	do...	.001850
Reduction in diameter at point of rupture	do...	.095
Reduction in area after rupture, per centum of original section		34.0
Position of rupture	$\frac{3}{8}$ inch from neck	
Character of broken surface	granular; dull spot at circumference	
Diameter ".1 from point of rupture		".39
Elongation of inch sections		".30*, ".12

No. 2277.

Marks, ^{32 J₂₃}_{B T₂ M}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001100	.000200	0.	.....	
8,000	40,000	.001200	.000100	0.	.....	
9,000	45,000	.001400	.000200	0.	.....	
10,000	50,000	.001600	.000200	0.	.....	
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001700	0.	.....	.....	
10,800	54,000	.001750	.000050	.....	.....	
11,000	55,000	.001800	.000050	.....	.....	
11,200	56,000	.001800	0.	.....	.....	
11,400	57,000	.001850	.000050	.....	.....	
11,600	58,000	.001950	.000100			Elastic limit.
11,800	59,000	.006500	.004550	.....	.....	
12,000	60,000	.007350	.000850	.....	.....	
12,400	62,000	.009350	.002000	.....	.....	
12,800	64,000	.010600	.001250	.....	.....	
13,200	66,000	.012000	.001400	.....	.....	
13,600	68,000	.013750	.001750	.....	.....	
14,000	70,000	.016000	.002250	.....	.....	
14,400	72,000	.017500	.001500	.....	.....	
14,800	74,000	.020000	.002500	.....	.....	
15,200	76,000	.022150	.002150	.....	.....	
15,600	78,000	.024250	.002100	.....	.....	
16,000	80,000	.027250	.003000	.....	.....	
16,400	82,000	.030000	.002750	.....	.....	
16,800	84,000	.032600	.002600	.....	.....	
17,200	86,000	.036000	.003400	.....	.....	
17,600	88,000	.040000	.004000	.....	.....	
18,000	90,000	.044750	.004750	.....	.....	
18,400	92,000	.050000	.005240	.....	.....	
18,800	94,000	.0550	.0050	.....	.....	
19,200	96,000	.0650	.0100	.....	.....	
19,600	98,000	.0850	.0200			Tensile strength.
19,970	99,850	.1250	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	99,850
Elastic limit per square inch of original section	do...	58,000
Elongation per inch after rupture	inch..	0.2400
Elongation per inch under strain at elastic limit	do...	.001950
Reduction in diameter at point of rupture	do...	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	".05 from middle of stem	
Character of broken surface	silky, with traces of granulation	
Elongation of inch sections	".32*, ".16	

No. 634.

Marks, ^{32 J₂₃}_{B T₃ M}

Length, 4".504.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000133	.000133	0.	-----	
5,000	10,000	.000267	.000134	0.	-----	
7,500	15,000	.000433	.000166	.000033	.000033	
10,000	20,000	.000600	.000167	.000033	0.	
12,500	25,000	.000767	.000167	.000033	0.	
15,000	30,000	.000967	.000200	.000033	0.	
17,500	35,000	.001133	.000166	.000033	0.	
20,000	40,000	.001300	.000167	.000033	0.	
22,500	45,000	.001467	.000167	.000033	0.	
23,000	46,000	.001500	.000033	-----	-----	
23,500	47,000	.001533	.000033	-----	-----	
24,000	48,000	.001567	.000034	-----	-----	
24,500	49,000	.001600	.000033	-----	-----	
25,000	50,000	.001667	.000067	.000033	0.	
25,500	51,000	.001667	0.	-----	-----	Elastic limit.
26,000	52,000	.001700	.000033	-----	-----	
26,500	53,000	.001733	.000033	-----	-----	
27,000	54,000	.001767	.000034	-----	-----	
27,500	55,000	.001800	.000033	.000033	0.	
28,000	56,000	.001900	.000100	-----	-----	Ultimate strength.
28,500	57,000	.001967	.000067	-----	-----	
29,000	58,000	.002100	.000133	-----	-----	
29,500	59,000	.006300	.004200	-----	-----	
30,000	60,000	.008333	.002033	-----	-----	
47,520	95,040	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section.....pounds.. 55,000
 Compression per inch under stress at elastic limit....."0.001800
 Ultimate strength per square inch of original sectionpounds.. 95,040
 Manner of failuretriple flexure

No. 2256.

Marks, $\frac{32}{M} \frac{J_{24}}{T_1} \frac{M}{M}$ Diameter, $\frac{1}{2}$ ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.	.....	
2,000	10,000	.000300	.000100	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001300	.000200	0.	.....	
9,000	45,000	.001450	.000150	0.	.....	
10,000	50,000	.001600	.000150	0.	.....	
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001850	.000100	.....	.....	
11,000	55,000	.001850	0.	.....	.....	
11,200	56,000	.001900	.000050	.....	.....	
11,400	57,000	.001950	.000050	.....	.....	
11,600	58,000	.001950	0.			Elastic limit.
11,800	59,000	.002000	.000050	.....	.....	
12,000	60,000	{ .002750	.000750	.....	.....	
12,400	62,000		.001000	.....	.....	
12,800	64,000	.009750	.001750	.....	.....	
13,200	66,000	.011000	.001250	.....	.....	
13,600	68,000	.012500	.001500	.....	.....	
14,000	70,000	.014000	.001500	.....	.....	
14,400	72,000	.015750	.001750	.....	.....	
14,800	74,000	.017500	.001750	.....	.....	
15,200	76,000	.019250	.001750	.....	.....	
15,600	78,000	.021500	.002250	.....	.....	
16,000	80,000	.024000	.002500	.....	.....	
16,400	82,000	.026000	.002000	.....	.....	
16,800	84,000	.029000	.003000	.....	.....	
17,200	86,000	.031500	.002500	.....	.....	
17,600	88,000	.034250	.002750	.....	.....	
18,000	90,000	.037500	.003250			Tensile strength.
18,400	92,000	.041250	.003750	.....	.....	
18,800	94,000	.045500	.004250	.....	.....	
19,200	96,000	.050500	.005000	.....	.....	
19,600	98,000	.0600	.0095	.....	.....	
20,000	100,000	.0750	.0150			
20,400	102,000	.0900	.0150	.....	.....	
20,710	103,550	.1750	.0850	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	103,550
Elastic limit per square inch of original section.....	do...	59,000
Elongation per inch after rupture.....	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do...	.002000
Reduction in diameter at point of rupture.....	do...	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	1" from neck	
Character of broken surface.....	silky; interspersed with fine granulation	
Elongation of inch sections.....	".29*, ".14	

No. 2257.

Marks, $\overset{32}{M} \overset{J_{24}}{T_2} M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.	.....	
2,000	10,000	.000400	.000200	0.	.....	
3,000	15,000	.000500	.000100	0.	.....	
4,000	20,000	.000700	.000200	0.	.....	
5,000	25,000	.000900	.000200	0.	.....	
6,000	30,000	.001000	.000100	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001400	.000200	0.	.....	
9,000	45,000	.001550	.000150	0.	.....	
10,000	50,000	.001700	.000150	0.	.....	
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001800	.000050	.....	.....	
10,600	53,000	.001850	.000050	.....	.....	
10,800	54,000	.001900	.000050	.....	.....	
11,000	55,000	.001950	.000050	.....	.....	
11,200	56,000	.002000	.000050			Elastic limit.
11,400	57,000	.002100	.000100	.....	.....	
11,600	58,000	.006900	.000800	.....	.....	
11,800	59,000	.007500	.000600	.....	.....	
12,000	60,000	.008000	.000500	.....	.....	
12,400	62,000	.009600	.001600	.....	.....	
12,800	64,000	.011500	.001900	.....	.....	
13,200	66,000	.012750	.001250	.....	.....	
13,600	68,000	.014250	.001500	.....	.....	
14,000	70,000	.016000	.001750	.....	.....	
14,400	72,000	.017750	.001750	.....	.....	
14,800	74,000	.020000	.002250	.....	.....	
15,200	76,000	.022000	.002000	.....	.....	
15,600	78,000	.024250	.002350	.....	.....	
16,000	80,000	.027000	.002750	.....	.....	
16,400	82,000	.029250	.002250	.....	.....	
16,800	84,000	.031900	.002650	.....	.....	
17,200	86,000	.035000	.003100	.....	.....	
17,600	88,000	.038500	.003500	.....	.....	
18,000	90,000	.042500	.004000	.....	.....	
18,400	92,000	.049500	.007000	.....	.....	
18,800	94,000	.054000	.004500			Tensile strength.
19,200	96,000	.0700	.0160	.....	.....	
19,600	98,000	.0800	.0100	.....	.....	
20,000	100,000	.0900	.0100	.....	.....	
20,320	101,600	.1400	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	101,600
Elastic limit per square inch of original section.....	do....	57,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do....	.002100
Reduction in diameter at point of rupture.....	do....	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....	1".07 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".22*, ".18	

No. 630.

Marks, ^{32 J₂₄}_{M T₃ M}

Length, 4'' .502.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	-----	
5,000	10,000	.000267	.000167	0.	-----	
7,500	15,000	.000400	.000133	0.	-----	
10,000	20,000	.000600	.000200	0.	-----	
12,500	25,000	.000767	.000167	.000033	.000033	
15,000	30,000	.000900	.000133	.000033	0.	
17,500	35,000	.001100	.000200	.000033	0.	
20,000	40,000	.001267	.000167	.000033	0.	
22,500	45,000	.001433	.000166	.000033	0.	
23,000	46,000	.001500	.000067	-----	-----	
23,500	47,000	.001500	0.	-----	-----	
24,000	48,000	.001533	.000033	-----	-----	
24,500	49,000	.001567	.000034	-----	-----	
25,000	50,000	.001600	.000033	.000033	0.	
25,500	51,000	.001633	.000033	-----	-----	
26,000	52,000	.001667	.000034	-----	-----	
26,500	53,000	.001700	.000033	-----	-----	
27,000	54,000	.001733	.000033	-----	-----	
27,500	55,000	.001767	.000034	.000067	.000034	
28,000	56,000	.001800	.000033	-----	-----	Elastic limit.
28,500	57,000	.001833	.000033	-----	-----	
29,000	58,000	.003267	.001434	-----	-----	
29,500	59,000	.008100	.004833	-----	-----	
30,000	60,000	.009233	.001133	-----	-----	Ultimate strength.
49,080	98,160	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section pounds.. 57,000
 Compression per inch under stress at elastic limit. inch.. 0.001833
 Ultimate strength per square inch of original section pounds.. 98,160
 Manner of failure triple flexure

No. 2278.

Marks, ^{32 J₂₅}_{B T₁ M}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000350	.000200	0.	-----	
3,000	15,000	.000600	.000250	0.	-----	
4,000	20,000	.000850	.000250	0.	-----	
5,000	25,000	.001000	.000150	0.	-----	
6,000	30,000	.001200	.000200	0.	-----	
7,000	35,000	.001300	.000100	0.	-----	
8,000	40,000	.001500	.000200	.000050	.000050	
9,000	45,000	.001650	.000150	-----	-----	
10,000	50,000	.001950	.000300	-----	-----	Elastic limit.
10,200	51,000	.002000	.000050	-----	-----	
10,400	52,000	.002050	.000050	-----	-----	
10,600	53,000	.002050	0.	-----	-----	
10,800	54,000	.002100	.000050	-----	-----	
11,000	55,000	.003500	.001400	-----	-----	
11,200	56,000	.005000	.001500	-----	-----	
11,400	57,000	.001300	.001300	-----	-----	
11,600	58,000	.008250	.001950	-----	-----	
11,800	59,000	.009250	.001000	-----	-----	
12,000	60,000	.010150	.000900	-----	-----	
12,400	62,000	.011150	.001000	-----	-----	
12,800	64,000	.012850	.001700	-----	-----	
13,200	66,000	.015000	.002150	-----	-----	
13,600	68,000	.016250	.001250	-----	-----	
14,000	70,000	.018500	.002250	-----	-----	
14,400	72,000	.021500	.003000	-----	-----	
14,800	74,000	.023300	.001800	-----	-----	
15,200	76,000	.025500	.002200	-----	-----	
15,600	78,000	.029000	.003500	-----	-----	
16,000	80,000	.031000	.002000	-----	-----	
16,400	82,000	.035000	.004000	-----	-----	
16,800	84,000	.038500	.003500	-----	-----	
17,200	86,000	.043200	.004700	-----	-----	
17,600	88,000	.051000	.007800	-----	-----	
18,000	90,000	.0550	.0040	-----	-----	
18,400	92,000	.0650	.0100	-----	-----	
18,800	94,000	.0850	.0200	-----	-----	
19,200	96,000	.1050	.0200	-----	-----	
19,320	96,600	.1500	.0450	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	96,600
Elastic limit per square inch of original section.....	do...	54,000
Elongation per inch after rupture.....	inch..	0.2500
Elongation per inch under strain at elastic limit.....	do..	.002100
Reduction in diameter at point of rupture.....	do...	.145
Reduction in area after rupture, per centum of original section.....		49.1
Position of rupture.....	.65 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	.36, .14	

No. 2279.

Marks, ^{32 J₂₅}
B T₂ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000850	.000250	0.	.....	
6,000	30,000	.001050	.000200	0.	.....	
7,000	35,000	.001200	.000150	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001550	.000200	0.	.....	
10,000	50,000	.001700	.000150	0.		Elastic limit.
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001800	.000050	.....	.....	
10,600	53,000	.001850	.000050	.....	.....	
10,800	54,000	.002050	.000200	.....	.....	
11,000	55,000	.007600	.005550	.....	.....	
11,200	56,000	.008250	.000650	.....	.....	
11,400	57,000	.008750	.000500	.....	.....	
11,600	58,000	.009700	.000950	.....	.....	
11,800	59,000	.010700	.001000	.....	.....	
12,000	60,000	.012000	.001300			Tensile strength.
12,400	62,000	.013550	.001550	.....	.....	
12,800	64,000	.015500	.001950	.....	.....	
13,200	66,000	.017450	.001950	.....	.....	
13,600	68,000	.019150	.001700	.....	.....	
14,000	70,000	.021250	.002100	.....	.....	
14,400	72,000	.023500	.002250	.....	.....	
14,800	74,000	.026550	.003050	.....	.....	
15,200	76,000	.029250	.002700	.....	.....	
15,600	78,000	.032000	.002750	.....	.....	
16,000	80,000	.035600	.003600			Tensile strength.
16,400	82,000	.040000	.004400	.....	.....	
16,800	84,000	.045000	.005000	.....	.....	
17,200	86,000	.050500	.005500	.....	.....	
17,600	88,000	.0600	.0095	.....	.....	
18,000	90,000	.0700	.0100	.....	.....	
18,400	92,000	.0900	.0200	.....	.....	
18,800	94,000	.1500	.0600	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	94,000
Elastic limit per square inch of original section	do ..	53,000
Elongation per inch after rupture	inch..	0.2600
Elongation per inch under strain at elastic limit	do ..	.001850
Reduction in diameter at point of rupture	do ..	.145
Reduction in area after rupture, per centum of original section		49.1
Position of rupture	".85 from neck	
Character of broken surface	silky	
Elongation of inch sections	".36*, ".16	

No. 635.

Marks, ³²J₂₅
B T₃ M
Length, 4''⁵⁰⁶.
Diameter, ''⁷⁹⁹.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000133	.000133	0.	-----	
5,000	10,000	.000233	.000100	0.	-----	
7,500	15,000	.000400	.000167	0.	-----	
10,000	20,000	.000600	.000200	.000033	.000033	
12,500	25,000	.000767	.000167	.000033	0.	
15,000	30,000	.000933	.000166	.000033	0.	
17,500	35,000	.001133	.000200	.000033	0.	
20,000	40,000	.001333	.000200	.000033	0.	
22,500	45,000	.001500	.000167	.000033	0.	
25,000	50,000	.001667	.000167	.000033	0.	
25,500	51,000	.001700	.000033	-----	-----	
26,000	52,000	.001767	.000067	-----	-----	
26,500	53,000	.001800	.000033	-----	-----	
27,000	54,000	.001867	.000067	-----	-----	
27,500	55,000	.001967	.000100	.000067	.000034	Elastic limit.
28,000	56,000	.002000	.000033	-----	-----	
28,500	57,000	.002167	.000167	-----	-----	
29,000	58,000	.004433	.002266	-----	-----	
29,500	59,000	.006667	.002234	-----	-----	Ultimate strength.
30,000	60,000	.008300	.001633	-----	-----	
47,250	94,500	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section pounds.. 56,00
Compression per inch under stress at elastic limit inch.. 0.00200
Ultimate strength per square inch of original section ... pounds.. 94,50
Manner of failure triple flexur

SPECIMENS FROM STEEL TRUNNION HOOPS

FOR

3".2 STEEL B. L. RIFLES.

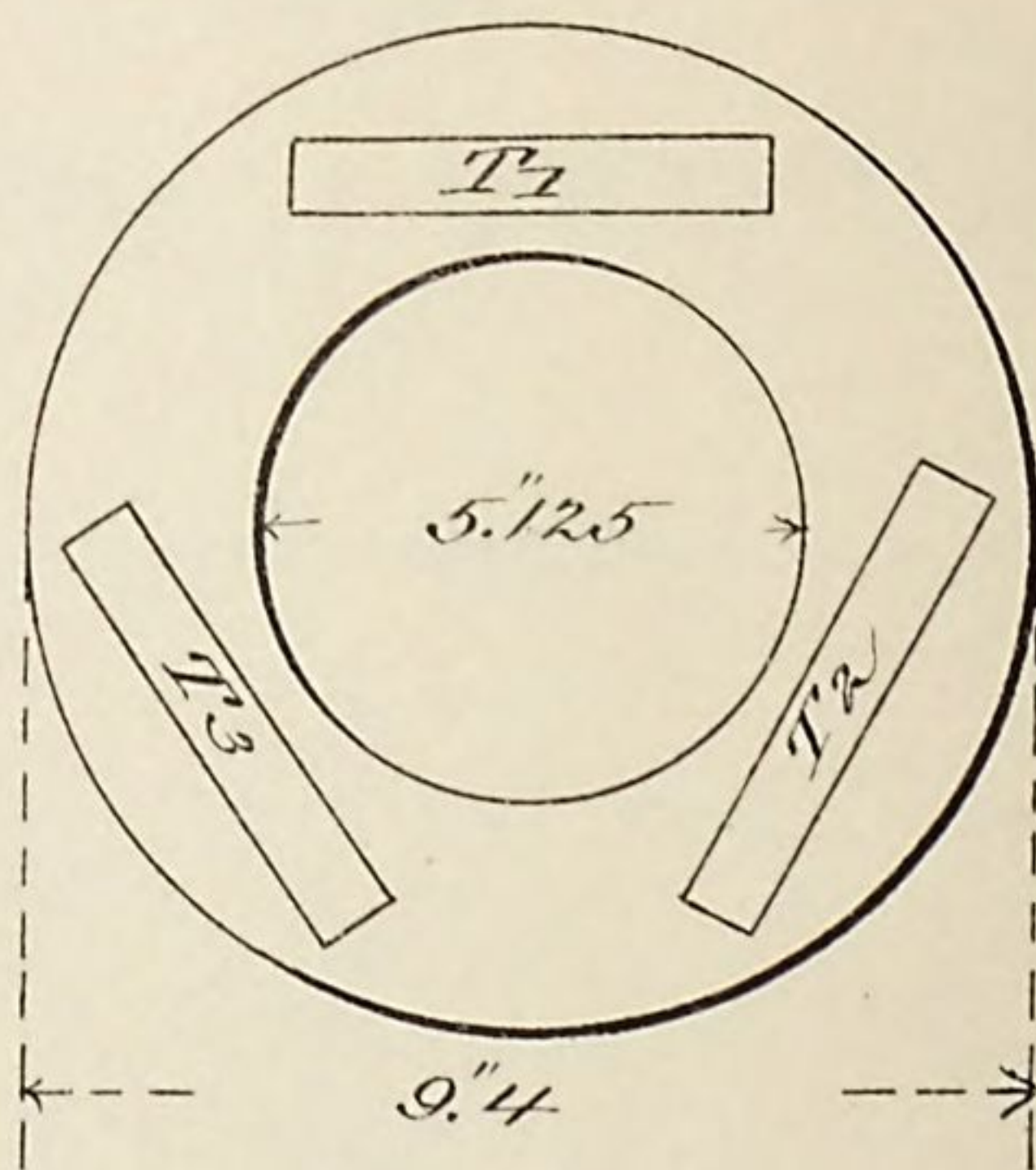
LETTERS FROM STREET TO STREET

STREET TO STREET

Transverse Hoop

Trunnion Hoop 3.2" Rifle.

*General drawing showing
positions from whence
specimens were taken.*



H Ex 31 49 2

SPECIMENS FROM STEEL TRUNNION HOOPS FOR 3".2 STEEL B. L. RIFLES.

No. 2051.

Marks, ^{32 T H₁}_{T₁}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001100	.000200	0.	.....	
7,200	36,000	.001150	.000050	.....	.....	
7,400	37,000	.001150	0.	.....	.....	
7,600	38,000	.001200	.000050	.....	.....	
7,800	39,000	.001250	.000050	.....	.....	
8,000	40,000	.001300	.000050	0.	.....	
8,200	41,000	.001350	.000050	.....	.....	
8,400	42,000	.001400	.000050	.....	.....	
8,600	43,000	.001450	.000050	.....	.....	
8,800	44,000	.001500	.000050	.....	.....	
9,000	45,000	.001550	.000050	0.	.....	
9,200	46,000	.001600	.000050			Elastic limit.
9,400	47,000	.001650	.000050	.....	.....	
9,600	48,000	.001800	.000150	.....	.....	
9,800	49,000	.001950	.000150	.....	.....	
10,000	50,000	.002550	.000600	.000800	.000800	
10,200	51,000	.003350	.000800	.....	.....	
10,400	52,000	.004100	.000750	.....	.....	
10,600	53,000	.004900	.000800	.....	.....	
10,800	54,000	.006200	.001300	.....	.....	
11,000	55,000	.006600	.000400	.....	.....	
11,200	56,000	.007350	.000750	.....	.....	
11,400	57,000	.008350	.001000	.....	.....	
11,600	58,000	.009350	.001000	.....	.....	
11,800	59,000	.010100	.000750	.....	.....	
12,000	60,000	.011100	.001000	.....	.....	
12,400	62,000	.013150	.002050	.....	.....	
12,800	64,000	.014950	.001800	.....	.....	
13,200	66,000	.017100	.002150	.....	.....	
13,600	68,000	.019250	.002150	.....	.....	
14,000	70,000	.021500	.002250			Tensile strength.
14,400	72,000	.024500	.003000	.....	.....	
14,800	74,000	.027500	.003000	.....	.....	
15,200	76,000	.030600	.003100	.....	.....	
15,600	78,000	.034050	.003450	.....	.....	
16,000	80,000	.038000	.003950	.....	.....	
16,400	82,000	.042500	.004500	.....	.....	
16,800	84,000	.048000	.005500	.....	.....	
17,200	86,000	.054900	.006900	.....	.....	
17,600	88,000	.063500	.008600	.....	.....	
18,000	90,000	.0800	.0165	.....	.....	
18,080	90,400	.....	.....	.....	.....	

General summary.

Specific gravity.....	7.8754
Tensile strength per square inch of original section..... pounds..	90,400
Elastic limit per square inch of original section..... do...	47,000
Elongation per inch after rupture..... inch..	0.0850
Elongation per inch under strain at elastic limit..... do...	.001650
Reduction in diameter at point of rupture..... do...	.015
Reduction in area after rupture, per centum of original section.....	5.7
Position of rupture.....	at neck
Character of broken surface.....	granular
Elongation of inch sections.....	".09*, ".08

No. 2052.

Marks, $^{32}T H_1$
 T_2 Diameter, $\frac{7}{16}$.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	0.	.....	
2,000	10,000	.000150	.000100	0.	.....	
3,000	15,000	.000250	.000100	0.	.....	
4,000	20,000	.000400	.000150	0.	.....	
5,000	25,000	.000600	.000200	0.	.....	
6,000	30,000	.000750	.000150	0.	.....	
7,000	35,000	.000900	.000150	0.	.....	
8,000	40,000	.001100	.000200	0.	.....	
8,200	41,000	.001150	.000050	.....	.....	
8,400	42,000	.001200	.000050	.....	.....	
8,600	43,000	.001200	0.	.....	.....	
8,800	44,000	.001250	.000050	.....	.....	
9,000	45,000	.001300	.000050	0.	.....	
9,200	46,000	.001300	0.	.....	.....	
9,400	47,000	.001400	.000100	.....	.....	
9,600	48,000	.001450	.000050	.....	.....	Elastic limit.
9,800	49,000	.001600	.000150	.....	.....	
10,000	50,000	.002600	.001000	.001050	.001050	
10,200	51,000	.003700	.001100	.....	.....	
10,400	52,000	.004300	.000600	.....	.....	
10,600	53,000	.005300	.001000	.....	.....	
10,800	54,000	.006150	.000850	.....	.....	
11,000	55,000	.007100	.000950	.....	.....	
11,200	56,000	.008100	.001000	.....	.....	
11,400	57,000	.008850	.000750	.....	.....	
11,600	58,000	.009650	.000800	.....	.....	
11,800	59,000	.010600	.000950	.....	.....	
12,000	60,000	.011600	.001000	.....	.....	
12,400	62,000	.013750	.002150	.....	.....	
12,800	64,000	.015600	.001850	.....	.....	
13,200	66,000	.017600	.002000	.....	.....	
13,600	68,000	.020100	.002500	.....	.....	
14,000	70,000	.022600	.002500	.....	.....	
14,400	72,000	.025150	.002550	.....	.....	
14,800	74,000	.027050	.002900	.....	.....	
15,200	76,000	.032100	.004050	.....	.....	
15,600	78,000	.034750	.002650	.....	.....	
16,000	80,000	.039000	.004250	.....	.....	
16,400	82,000	.044000	.005000	.....	.....	
16,800	84,000	.049750	.005750	.....	.....	
17,200	86,000	.057050	.007300	.....	.....	
17,600	88,000	.067500	.010450	.....	.....	
18,000	90,000	.0850	.0175	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	90,000
Elastic limit per square inch of original section	do...	48,000
Elongation per inch after rupture	inch..	0.0950
Elongation per inch under strain at elastic limit	do...	.001450
Reduction in diameter at point of rupture	do ..	.015
Reduction in area after rupture, per centum of original section .....	.....	5.7
Position of rupture	".17 from neck	
Character of broken surface	granular; surface cracks in stem	
Elongation of inch sections	".11*, ".08	

No. 2053.

Marks, $^{32}T H_1$
 T_3 Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	0.	.....	
2,000	10,000	.000150	.000100	0.	.....	
3,000	15,000	.000250	.000100	0.	.....	
4,000	20,000	.000450	.000200	0.	.....	
5,000	25,000	.000650	.000200	0.	.....	
6,000	30,000	.000800	.000150	0.	.....	
7,000	35,000	.000950	.000150	0.	.....	
8,000	40,000	.001100	.000150	— .000050	— .000050	
8,200	41,000	.001100	0.	.....	.....	
8,400	42,000	.001150	.000050			Elastic limit.
8,600	43,000	.001200	.000050	.....	.....	
8,800	44,000	.001250	.000050	.....	.....	
9,000	45,000	.001300	.000050	.000000	.000050	
9,200	46,000	.001350	.000050	.....	.....	
9,400	47,000	.001400	.000050	.....	.....	
9,600	48,000	.001450	.000050	.....	.....	
9,800	49,000	.001500	.000050	.....	.....	
10,000	50,000	.001550	.000050	.000150	.000150	
10,200	51,000	.002500	.000950	.....	.....	
10,400	52,000	.003600	.001100			
10,600	53,000	.004650	.001050	.....	.....	
10,800	54,000	.005800	.001150	.....	.....	
11,000	55,000	.007000	.001200	.....	.....	
11,200	56,000	.007750	.000750	.....	.....	
11,400	57,000	.008350	.000600	.....	.....	
11,600	58,000	.009150	.000800	.....	.....	
11,800	59,000	.009950	.000800	.....	.....	
12,000	60,000	.010950	.001000	.....	.....	
12,400	62,000	.012900	.001950	.....	.....	
12,800	64,000	.015500	.002600			
13,200	66,000	.018000	.002500	.....	.....	
13,600	68,000	.020000	.002000	.....	.....	
14,000	70,000	.022500	.002500	.....	.....	
14,400	72,000	.024900	.002400	.....	.....	
14,800	74,000	.028050	.003150	.....	.....	
15,200	76,000	.031550	.003500	.....	.....	
15,600	78,000	.034500	.002950	.....	.....	
16,000	80,000	.039500	.005000	.....	.....	
16,400	82,000	.044500	.005000	.....	.....	
16,800	84,000	.049550	.005050			
17,200	86,000	.056750	.007200	.....	.....	
17,600	88,000	.065750	.009000	.....	.....	
18,000	90,000	.0850	.019250	.....	.....	
18,280	91,480					Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	91,480
Elastic limit per square inch of original section	do...	50,000
Elongation per inch after rupture	inch..	0.1200
Elongation per inch under strain at elastic limit	do...	.001550
Reduction in diameter at point of rupture	do...	.035
Reduction in area after rupture, per centum of original section		13.2
Position of rupture	at middle of stem	
Character of broken surface	granular; surface cracks in stem	
Elongation of inch sections	" .13", ".11	

NEW TRUNNION HOOP, No. 1.

No. 2374.

Marks, ^{32 T H₁}_{T₁}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001000	.000100	0.	.....	
8,000	40,000	.001200	.000200	0.	.....	
9,000	45,000	.001350	.000150	0.	.....	
10,000	50,000	.001550	.000200	0.		Elastic limit.
10,200	51,000	.001550	0.	.....	.....	
10,400	52,000	.001600	.000050	.....	.....	
10,600	53,000	.001650	.000050	.....	.....	
10,800	54,000	.001750	.000100	.....	.....	
11,000	55,000	.002500	.000750	.....	.....	
11,200	56,000	.003600	.001100	.....	.....	
11,400	57,000	.004650	.001050	.....	.....	
11,600	58,000	.005650	.001000	.....	.....	
11,800	59,000	.006600	.000950	.....	.....	
12,000	60,000	.007500	.000900	.....	.....	
12,400	62,000	.009000	.001500	.....	.....	
12,800	64,000	.010500	.001500	.....	.....	
13,200	66,000	.012350	.001850	.....	.....	
13,600	68,000	.014250	.001900	.....	.....	
14,000	70,000	.016050	.001800	.....	.....	
14,400	72,000	.017750	.001700	.....	.....	
14,800	74,000	.020000	.002250	.....	.....	
15,200	76,000	.021700	.001700	.....	.....	
15,600	78,000	.024250	.002550	.....	.....	
16,000	80,000	.027000	.002750			Tensile strength.
16,400	82,000	.030050	.003050	.....	.....	
16,800	84,000	.032850	.002800	.....	.....	
17,200	86,000	.036150	.003300	.....	.....	
17,600	88,000	.040250	.004100	.....	.....	
18,000	90,000	.044800	.004550	.....	.....	
18,400	92,000	.051000	.006200	.....	.....	
18,800	94,000	.058500	.007500	.....	.....	
19,200	96,000	.0650	.0065	.....	.....	
19,600	98,000	.0800	.0150	.....	.....	
20,000	100,000	.1300	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	100,000
Elastic limit per square inch of original section	do...	54,000
Elongation per inch after rupture	inch..	0.1550
Elongation per inch under strain at elastic limit	do...	.001750
Reduction in diameter at point of rupture	do...	.055
Reduction in area after rupture, per centum of original section		20.5
Position of rupture	$\frac{5}{8}$ inch from neck	
Character of broken surface, granular; radiating from a point in the circumference; opened cracks in surface of stem.		
Elongation of inch sections	".19", ".12	

No. 2375.

Marks, $^{32}T H_1$ Diameter, $^{11}.505$.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000400	.000250	0.	.....	
3,000	15,000	.000550	.000150	0.	.....	
4,000	20,000	.000750	.000200	0.	.....	
5,000	25,000	.000900	.000150	0.	.....	
6,000	30,000	.001050	.000150	0.	.....	
7,000	35,000	.001250	.000200	.....	.....	
8,000	40,000	.001400	.000150	.....	.....	
9,000	45,000	.001550	.000150	.....	.....	
10,000	50,000	.001750	.000200			Elastic limit.
10,200	51,000	.001800	.000050	.....	.....	
10,400	52,000	.001850	.000050	.....	.....	
10,600	53,000	.001850	0.	.....	.....	
10,800	54,000	.001900	.000050	.....	.....	
11,000	55,000	.001950	.000050	.....	.....	
11,200	56,000	.003950	.002000	.....	.....	
11,400	57,000	.004950	.001000	.....	.....	
11,600	58,000	.005950	.001000	.....	.....	
11,800	59,000	.007000	.001050	.....	.....	
12,000	60,000	.008000	.001000	.....	.....	
12,400	62,000	.009500	.001500	.....	.....	
12,800	64,000	.011250	.001750	.....	.....	
13,200	66,000	.013050	.001800	.....	.....	
13,600	68,000	.015000	.001950	.....	.....	
14,000	70,000	.017000	.002000	.....	.....	
14,400	72,000	.018750	.001750	.....	.....	
14,800	74,000	.020650	.001900	.....	.....	
15,200	76,000	.023050	.002400	.....	.....	
15,600	78,000	.025650	.002600	.....	.....	
16,000	80,000	.028250	.002600	.....	.....	
16,400	82,000	.031050	.002800	.....	.....	
16,800	84,000	.034500	.003450	.....	.....	
17,200	86,000	.038000	.003500	.....	.....	
17,600	88,000	.043500	.005500	.....	.....	
18,000	90,000	.048000	.004500	.....	.....	
18,400	92,000	.054000	.006000	.....	.....	
18,800	94,000	.0650	.0110	.....	.....	
19,200	96,000	.0750	.0100	.....	.....	
19,580	97,900	.1050	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	97,900
Elastic limit per square inch of original section.....	do...	55,000
Elongation per inch after rupture.....	inch..	0.2100
Elongation per inch under strain at elastic limit.....	do...	.001950
Reduction in diameter at point of rupture.....	do...	.155
Reduction in area after rupture, per centum of original section.....		51.9
Position of rupture.....	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	" .32*, ".10	

H. Ex. 31—21

No. 2376.

Marks, ³² T H,
 T₆
Diameter, ".505.
Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001350	.000150	.....	.....	
10,000	50,000	.001550	.000200			Elastic limit.
11,000	55,000	.001750	.000200	.....	.....	
11,200	56,000	.001800	.000050	.....	.....	
11,400	57,000	.002550	.000750	.....	.....	
11,600	58,000	.003950	.001400	.....	.....	
11,800	59,000	.004950	.001000	.....	.....	
12,000	60,000	.005900	.000950	.....	.....	
12,400	62,000	.007950	.002050	.....	.....	
12,800	64,000	.009350	.001400	.....	.....	
13,200	66,000	.011250	.001900	.....	.....	
13,600	68,000	.013100	.001850	.....	.....	
14,000	70,000	.014750	.001650	.....	.....	
14,400	72,000	.016750	.002000	.....	.....	
14,800	74,000	.018500	.001750	.....	.....	
15,200	76,000	.020600	.002100	.....	.....	
15,600	78,000	.023000	.002400	.....	.....	
16,000	80,000	.025600	.002600	.....	.....	
16,400	82,000	.028500	.002900	.....	.....	
16,800	84,000	.031500	.003000	.....	.....	
17,200	86,000	.034750	.003250	.....	.....	
17,600	88,000	.038500	.003750	.....	.....	
18,000	90,000	.043400	.004900	.....	.....	
18,400	92,000	.048000	.004600	.....	.....	
18,800	94,000	.053500	.005500	.....	.....	
19,200	96,000	.0650	.0115	.....	.....	
19,600	98,000	.0750	.0100	.....	.....	
20,000	100,000	.0950	.0200	.....	.....	
20,220	101,100	.1350	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	101,100
Elastic limit per square inch of original section.....	do...	56,000
Elongation per inch after rupture.....	inch..	0.1600
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do...	.075
Reduction in area after rupture, per centum of original section.....		27.4
Position of rupture.....	$\frac{3}{8}$ inch from neck	
Character of broken surface, granular; dull center and spot at circumference; opened cracks in sur- face of stem.		
Elongation of inch sections.....		.20*, ".12

No. 2218.

Marks, ³² T H₂
T₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001550	.000200	0.	.....	
10,000	50,000	.001800	.000250	0.		Elastic limit.
10,200	51,000	.001800	0.	.....	.....	
10,400	52,000	.001850	.000050	.....	.....	
10,600	53,000	.002150	.000300	.....	.....	
10,800	54,000	.003000	.000850	.....	.....	
11,000	55,000	.005000	.002000	.....	.....	
11,200	56,000	.007000	.002000	.....	.....	
11,400	57,000	.008500	.001500	.....	.....	
11,600	58,000	.009600	.001100	.....	.....	
11,800	59,000	.010350	.000750	.....	.....	
12,000	60,000	.011300	.000950	.....	.....	
12,400	62,000	.013050	.001750	.....	.....	
12,800	64,000	.015000	.001950	.....	.....	
13,200	66,000	.017050	.002050	.....	.....	
13,600	68,000	.019800	.002750	.....	.....	
14,000	70,000	.022500	.002700	.....	.....	
14,400	72,000	.025500	.003000	.....	.....	
14,800	74,000	.028000	.002500	.....	.....	
15,200	76,000	.030100	.002100	.....	.....	
15,600	78,000	.034000	.003900	.....	.....	
16,000	80,000	.038000	.004000			Tensile strength.
16,400	82,000	.043000	.005000	.....	.....	
16,800	84,000	.049000	.006000	.....	.....	
17,200	86,000	.056000	.007000	.....	.....	
17,600	88,000	.066250	.010250	.....	.....	
18,000	90,000	.0850	.018750	.....	.....	
18,370	91,850	.1200	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	91,850
Elastic limit per square inch of original section	do...	52,000
Elongation per inch after rupture	inch..	0.1400
Elongation per inch under strain at elastic limit	do ..	.001850
Reduction in diameter at point of rupture	do...	.045
Reduction in area after rupture, per centum of original section		16.9
Position of rupture	"1 from middle of stem	
Character of broken surface... granular; dull spot at circumference; opened cracks in surface of stem		
Elongation of inch sections	"16*, ".12	

No. 2219.

Marks, $\frac{32}{T_2} T H_2$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000550	.000200	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001350	.000150	0.	.....	
10,000	50,000	.001600	.000250	0.	.....	
10,200	51,000	.001600	0.	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.001750	.000050			Elastic limit.
11,000	55,000	.010700	.008950	.....	.....	
11,200	56,000	.011050	.000950	.....	.....	
11,400	57,000	.012250	.000600	.....	.....	
11,600	58,000	.013250	.001000	.....	.....	
11,800	59,000	.014350	.001100	.....	.....	
12,000	60,000	.015500	.001150	.....	.....	
12,400	62,000	.017850	.002350	.....	.....	
12,800	64,000	.020100	.002250	.....	.....	
13,200	66,000	.023000	.002900	.....	.....	
13,600	68,000	.025750	.002750	.....	.....	
14,000	70,000	.029000	.003250	.....	.....	
14,400	72,000	.032450	.003450	.....	.....	
14,800	74,000	.036400	.003950	.....	.....	
15,200	76,000	.040600	.004200	.....	.....	
15,600	78,000	.046550	.005950	.....	.....	
16,000	80,000	.053500	.006950	.....	.....	
16,400	82,000	.062000	.008500	.....	.....	
16,800	84,000	.0800	.0180			Tensile strength.
17,200	86,000	.1000	.0200	.....	.....	
17,510	87,550	.1500	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	87,550
Elastic limit per square inch of original section	do...	54,000
Elongation per inch after rupture	inch..	0.1950
Elongation per inch under strain at elastic limit	do...	.001750
Reduction in diameter at point of rupture	do...	.085
Reduction in area after rupture, per centum of original section		30.7
Position of rupture	".1 from middle of stem	
Character of broken surface	silky; small granular spot near center	
Elongation of inch sections	".25*, ".14	

No. 2220.

Marks, ^{32 T H₂}
_{T₃}

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000300	.000150	0.	-----	
3,000	15,000	.000450	.000150	0.	-----	
4,000	20,000	.000600	.000150	0.	-----	
5,000	25,000	.000750	.000150	0.	-----	
6,000	30,000	.000950	.000200	0.	-----	
7,000	35,000	.001150	.000200	0.	-----	
8,000	40,000	.001300	.000150	0.	-----	
9,000	45,000	.001500	.000200	0.	-----	
10,000	50,000	.001700	.000200	0.	-----	
10,200	51,000	.001700	0.	-----	-----	
10,400	52,000	.001750	.000050	-----	-----	
10,600	53,000	.001800	.000050	-----	-----	
10,800	54,000	.001800	0.	-----	-----	Elastic limit.
		.007500	.005900	-----	-----	
11,000	55,000	.008500	.001000	-----	-----	
11,200	56,000	.009350	.000850	-----	-----	
11,400	57,000	.010350	.001000	-----	-----	
11,600	58,000	.011250	.000900	-----	-----	
11,800	59,000	.012250	.001000	-----	-----	
12,000	60,000	.013500	.001250	-----	-----	
12,400	62,000	.015400	.001900	-----	-----	
12,800	64,000	.017550	.002150	-----	-----	
13,200	66,000	.020100	.002550	-----	-----	
13,600	68,000	.022650	.002550	-----	-----	
14,000	70,000	.025600	.002950	-----	-----	
14,400	72,000	.028600	.003000	-----	-----	
14,800	74,000	.031900	.003300	-----	-----	
15,200	76,000	.036600	.004700	-----	-----	
15,600	78,000	.041000	.004400	-----	-----	
16,000	80,000	.046250	.005250	-----	-----	
16,400	82,000	.053000	.006750	-----	-----	
16,800	84,000	.061750	.008750	-----	-----	
17,200	86,000	.0750	.013250	-----	-----	
17,500	87,500	.1000	.0250	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	87,500
Elastic limit per square inch of original section	do..	54,000
Elongation per inch after rupture	inch..	0.1050
Elongation per inch under strain at elastic limit	do ..	.001800
Reduction in diameter at point of rupture	do...	.034
Reduction in area after rupture, per centum of original section		13.2
Position of rupture	"40 from neck	
Character of broken surface... granular; dull spot at circumference; opened cracks in surface of stem		
Elongation of inch sections	".08, ".13*	

NEW TRUNNION HOOP, No. 2.

No. 2510.

Marks, $^{32}T H_2$
 T_4

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.	.....	
2,000	10,000	.000300	.000100	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000700	.000250	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001400	.000200	0.	.....	
9,000	45,000	.001600	.000200	.....	.....	
10,000	50,000	.001700	.000100			Elastic limit.
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001800	.000050	.....	.....	
10,600	53,000	.001900	.000100	.....	.....	
10,800	54,000	.002600	.000700	.....	.....	
11,000	55,000	.003100	.000500	.....	.....	
11,200	56,000	.004300	.001200	.....	.....	
11,400	57,000	.005100	.000800	.....	.....	
11,600	58,000	.005850	.000750	.....	.....	
11,800	59,000	.006700	.000850	.....	.....	
12,000	60,000	.007750	.001050	.....	.....	
12,400	62,000	.009750	.002000	.....	.....	
12,800	64,000	.011750	.002000	.....	.....	
13,200	66,000	.014000	.002250	.....	.....	
13,600	68,000	.015650	.001650	.....	.....	
14,000	70,000	.017550	.001900			Tensile strength.
14,400	72,000	.019750	.002200	.....	.....	
14,800	74,000	.022150	.002400	.....	.....	
15,200	76,000	.024500	.002350	.....	.....	
15,600	78,000	.027200	.002700	.....	.....	
16,000	80,000	.030400	.003200	.....	.....	
16,400	82,000	.034000	.003600	.....	.....	
16,800	84,000	.037350	.003350	.....	.....	
17,200	86,000	.041500	.004150	.....	.....	
17,600	88,000	.047250	.005750	.....	.....	
18,000	90,000	.0550	.007750	.....	.....	
18,400	92,000	.0600	.0050	.....	.....	
18,800	94,000	.0750	.0150	.....	.....	
19,180	95,900	.1100	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	95,900
Elastic limit per square inch of original section	do...	53,000
Elongation per inch after rupture	inch..	0.1550
Elongation per inch under strain at elastic limit	do...	.001900
Reduction in diameter at point of rupture	do...	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture		".45 from neck
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections		".24*, ".70

No. 2511.

Marks, $^{32}T_{H_2}$ Diameter, $\frac{1}{2}$ ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000700	.000250	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001100	.000250	0.	.....	
7,000	35,000	.001300	.000200	0.	.....	
8,000	40,000	.001450	.000150	0.	.....	
9,000	45,000	.001600	.000150	.....	.....	
10,000	50,000	.001750	.000150			Elastic limit.
10,200	51,000	.001800	.000050	.....	.....	
10,400	52,000	.001800	0.	.....	.....	
10,600	53,000	.001850	.000050	.....	.....	
10,800	54,000	.001900	.000050	.....	.....	
11,000	55,000	.001950	.000050	.....	.....	
11,200	56,000	.002050	.000100	.....	.....	
11,400	57,000	.002100	.000050	.....	.....	
11,600	58,000	.002200	.000100	.....	.....	
11,800	59,000	.002450	.000250	.....	.....	
12,000	60,000	.003150	.000700	.....	.....	
12,400	62,000	.005050	.001900	.....	.....	
12,800	64,000	.006700	.001650	.....	.....	
13,200	66,000	.008600	.001900	.....	.....	
13,600	68,000	.010350	.001750	.....	.....	
14,000	70,000	.012390	.001950	.....	.....	
14,400	72,000	.015000	.002700	.....	.....	
14,800	74,000	.016750	.001750	.....	.....	
15,200	76,000	.017900	.001150	.....	.....	
15,600	78,000	.019500	.001600	.....	.....	
16,000	80,000	.022400	.002900	.....	.....	
16,400	82,000	.025250	.002850	.....	.....	
16,800	84,000	.027550	.002300	.....	.....	
17,200	86,000	.030600	.003050	.....	.....	
17,600	88,000	.034000	.003400	.....	.....	
18,000	90,000	.037750	.003750	.....	.....	
18,400	92,000	.042250	.004500	.....	.....	
18,800	94,000	.046500	.004250	.....	.....	
19,200	96,000	.0550	.0085	.....	.....	
19,600	98,000	.0600	.0050	.....	.....	
20,000	100,000	.0650	.0050	.....	.....	
20,400	102,000	.1000	.0350	.....	.....	
20,420	102,100	.1200	.0200			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	102,100
Elastic limit per square inch of original section	do...	58,000
Elongation per inch after rupture	inch..	0.1450
Elongation per inch under strain at elastic limit	do...	.002200
Reduction in diameter at point of rupture	do...	.065
Reduction in area after rupture, per centum of original section		23.9
Position of rupture	$\frac{5}{8}$ inch from neck	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	" .20*, ".09	

No. 2512.

Marks, $^{82}T H_2$
 T_6 Diameter, $''$.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000450	.000100	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000750	.000100	0.	.....	
6,000	30,000	.001000	.000250	0.	.....	
7,000	35,000	.001100	.000100	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001350	.000100	.....	.....	
10,000	50,000	.001600	.000250	.....	.....	
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001800	.000050	.....	.....	
11,000	55,000	.001850	.000050	.....	.....	Elastic limit.
11,200	56,000	.002100	.000250	.....	.....	
11,400	57,000	.002700	.000600	.....	.....	
11,600	58,000	.003750	.001050	.....	.....	
11,800	59,000	.004600	.000850	.....	.....	
12,000	60,000	.005600	.001000	.....	.....	
12,400	62,000	.007550	.001950	.....	.....	
12,800	64,000	.009000	.001450	.....	.....	
13,200	66,000	.011000	.002000	.....	.....	
13,600	68,000	.012500	.001500	.....	.....	
14,000	70,000	.014600	.002100	.....	.....	
14,400	72,000	.016550	.001950	.....	.....	
14,800	74,000	.018750	.002200	.....	.....	
15,200	76,000	.020750	.002000	.....	.....	
15,600	78,000	.023250	.002500	.....	.....	
16,000	80,000	.025850	.002600	.....	.....	
16,400	82,000	.029000	.003150	.....	.....	
16,800	84,000	.032000	.003000	.....	.....	
17,200	86,000	.036000	.004000	.....	.....	
17,600	88,000	.040000	.004000	.....	.....	
18,000	90,000	.044750	.004750	.....	.....	
18,400	92,000	.0500	.005250	.....	.....	
18,800	94,000	.0550	.0050	.....	.....	
19,200	96,000	.0650	.0100	.....	.....	
19,600	98,000	.0950	.0300	.....	.....	
19,740	98,700	.1100	.0150	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	98,700
Elastic limit per square inch of original section.....	do ..	55,000
Elongation per inch after rupture.....	inch..	0.2050
Elongation per inch under strain at elastic limit	do ..	.001850
Reduction in diameter at point of rupture.....	do ..	.145
Reduction in area after rupture, per centum of original section		49.1
Position of rupture	''	.17 from neck
Character of broken surface.....		silky
Elongation of inch sections	''	.17, ".24

No. 2282.

Marks, $\frac{32}{T_1} T H_2$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000500	.000100	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000800	.000150	0.	.....	
7,000	35,000	.000950	.000150	0.	.....	
8,000	40,000	.001150	.000200	0.	.....	
9,000	45,000	.001350	.000200	0.	.....	
10,000	50,000	.001500	.000200	0.		Elastic limit.
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.002100	.000450	.....	.....	
10,800	54,000	.002700	.000600	.....	.....	
11,000	55,000	.004000	.001300	.....	.....	
11,200	56,000	.004650	.000650	.....	.....	
11,400	57,000	.005500	.000850	.....	.....	
11,600	58,000	.006200	.000700	.....	.....	
11,800	59,000	.007100	.000900	.....	.....	
12,000	60,000	.008100	.001000	.....	.....	
12,400	62,000	.009600	.001500	.....	.....	
12,800	64,000	.011250	.001650	.....	.....	
13,200	66,000	.013200	.001950	.....	.....	
13,600	68,000	.015050	.001850	.....	.....	
14,000	70,000	.017000	.001950	.....	.....	
14,400	72,000	.019100	.002100	.....	.....	
14,800	74,000	.021200	.002100	.....	.....	
15,200	76,000	.023200	.002000	.....	.....	
15,600	78,000	.025500	.002300	.....	.....	
16,000	80,000	.028250	.002750	.....	.....	
16,400	82,000	.031250	.003000	.....	.....	
16,800	84,000	.035000	.003750	.....	.....	
17,200	86,000	.038000	.003500	.....	.....	
17,600	88,000	.042750	.004250	.....	.....	
18,000	90,000	.047250	.004500	.....	.....	
18,400	92,000	.054500	.007250	.....	.....	
18,800	94,000	.0650	.0105	.....	.....	
19,200	96,000	.0850	.0200	.....	.....	
19,600	98,000	.1050	.0200			Tensile strength.
19,650	98,250	.1300	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	98,250
Elastic limit per square inch of original section.....	do...	52,000
Elongation per inch after rupture.....	inch..	0.1950
Elongation per inch under strain at elastic limit.....	do...	.001650
Reduction in diameter at point of rupture.....	do...	.075
Reduction in area after rupture, per centum of original section.....		27.4
Position of rupture.....	$\frac{1}{2}$ inch from neck	
Character of broken surface; granular; dull spot at circumference; opened cracks in stem in vicinity of rupture.		
Elongation of inch sections.....	" .25* "	.14

No. 2283.

Marks, $\frac{32 T H_3}{T_2}$

Diameter, ".505.

Sectional area .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001100	.000200	0.	.....	
8,000	40,000	.001300	.000200	0.	.....	
9,000	45,000	.001450	.000150	0.	.....	
10,000	50,000	.001600	.000150	0.		Elastic limit.
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001850	.000150	.....	.....	
10,800	54,000	.002700	.000850	.....	.....	
11,000	55,000	.003600	.000900	.....	.....	
11,200	56,000	.004600	.001000	.....	.....	
11,400	57,000	.005600	.001000	.....	.....	
11,600	58,000	.006350	.000750	.....	.....	
11,800	59,000	.007250	.000900	.....	.....	
12,000	60,000	.007800	.000550			Tensile strength.
12,400	62,000	.009000	.001200	.....	.....	
12,800	64,000	.011000	.002000	.....	.....	
13,200	66,000	.012700	.001700	.....	.....	
13,600	68,000	.014600	.001900	.....	.....	
14,000	70,000	.016500	.001900	.....	.....	
14,400	72,000	.018500	.002000	.....	.....	
14,800	74,000	.020250	.001750	.....	.....	
15,200	76,000	.022450	.002200	.....	.....	
15,600	78,000	.024750	.002300	.....	.....	
16,000	80,000	.027500	.002750			Tensile strength.
16,400	82,000	.030150	.002650	.....	.....	
16,800	84,000	.034000	.003850	.....	.....	
17,200	86,000	.037550	.003550	.....	.....	
17,600	88,000	.041750	.004200	.....	.....	
18,000	90,000	.047000	.005250	.....	.....	
18,400	92,000	.052750	.005750	.....	.....	
18,800	94,000	.0650	.012250	.....	.....	
19,200	96,000	.0750	.0100	.....	.....	
19,600	98,000	.0950	.0200	.....	.....	
19,660	98,300	.1150	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	98,300
Elastic limit per square inch of original section.....	do...	52,000
Elongation per inch after rupture.....	inch..	0.1950
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do...	.095
Reduction in area after rupture, per centum of original section.....		34.0
Position of rupture.....	".95 from neck	
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections.....	".25", ".14	

No. 2284.

Marks, $^{32}T H_3$ Diameter, $\frac{1}{2}$.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000200	.000100	0.	-----	
3,000	15,000	.000400	.060150	0.	-----	
4,000	20,000	.000600	.000200	0.	-----	
5,000	25,000	.000750	.000150	0.	-----	
6,000	30,000	.000900	.000150	0.	-----	
7,000	35,000	.001050	.000150	0.	-----	
8,000	40,000	.001250	.000200	0.	-----	
9,000	45,000	.001350	.000100	0.	-----	
10,000	50,000	.001550	.000200	0.	-----	
10,200	51,000	.001650	.000100	-----	-----	Elastic limit.
10,400	52,000	.002050	.000400	-----	-----	
10,600	53,000	.002900	.000850	-----	-----	
10,800	54,000	.003750	.000850	-----	-----	
11,000	55,000	.004550	.000800	-----	-----	
11,200	56,000	.005300	.000750	-----	-----	
11,400	57,000	.006150	.000850	-----	-----	
11,600	58,000	.007000	.000850	-----	-----	
11,800	59,000	.007750	.000750	-----	-----	
12,000	60,000	.008650	.000900	-----	-----	
12,400	62,000	.010300	.001650	-----	-----	
12,800	64,000	.011750	.001450	-----	-----	
13,200	66,000	.013500	.001750	-----	-----	
13,600	68,000	.015600	.002100	-----	-----	
14,000	70,000	.017500	.001900	-----	-----	
14,400	72,000	.019300	.001800	-----	-----	
14,800	74,000	.021250	.001950	-----	-----	
15,200	76,000	.023500	.002250	-----	-----	
15,600	78,000	.026100	.002600	-----	-----	
16,000	80,000	.028650	.002550	-----	-----	
16,400	82,000	.032000	.003350	-----	-----	
16,800	84,000	.035000	.003000	-----	-----	
17,200	86,000	.039250	.004250	-----	-----	
17,600	88,000	.044000	.004750	-----	-----	
18,000	90,000	.049000	.005000	-----	-----	
18,400	92,000	.056000	.007000	-----	-----	
18,800	94,000	.0650	.0090	-----	-----	
19,200	96,000	.0800	.0150	-----	-----	
19,600	98,000	.1100	.0300	-----	-----	
19,620	98,100	.1300	.0200	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	98,100
Elastic limit per square inch of original section	do...	51,000
Elongation per inch after rupture	inch..	0.1350
Elongation per inch under strain at elastic limit	do...	.001650
Reduction in diameter at point of rupture	do...	.035
Reduction in area after rupture, per centum of original section		13.2
Position of rupture		.1 from neck
Character of broken surface	granular; opened cracks in surface of stem	
Elongation of inch sections		.15*, .12

No. 2377.

Marks, $^{32}T H_4$
 T_1

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.	.....	
2,000	10,000	.000450	.000250	0.	.....	
3,000	15,000	.000700	.000250	0.	.....	
4,000	20,000	.000900	.000200	0.	.....	
5,000	25,000	.001050	.000150	0.	.....	
6,000	30,000	.001200	.000150	0.	.....	
7,000	35,000	.001350	.000150	0.	.....	
8,000	40,000	.001500	.000150	0.	.....	
9,000	45,000	.001700	.000200	.....	.....	
10,000	50,000	.001950	.000250			Elastic limit.
10,200	51,000	.002050	.000100	.....	.....	
10,400	52,000	.002200	.000150	.....	.....	
10,600	53,000	.002450	.000250	.....	.....	
10,800	54,000	.002800	.000350	.....	.....	
11,000	55,000	.003300	.000500	.....	.....	
11,200	56,000	.003900	.000600	.....	.....	
11,400	57,000	.004750	.000850	.....	.....	
11,600	58,000	.005400	.000650	.....	.....	
11,800	59,000	.006450	.001050	.....	.....	
12,000	60,000	.007350	.000900			
12,400	62,000	.008900	.001550	.....	.....	
12,800	64,000	.010250	.001350	.....	.....	
13,200	66,000	.011600	.001350	.....	.....	
13,600	68,000	.013250	.001650	.....	.....	
14,000	70,000	.015250	.002000	.....	.....	
14,400	72,000	.017250	.002000	.....	.....	
14,800	74,000	.018750	.001500	.....	.....	
15,200	76,000	.021000	.002250	.....	.....	
15,600	78,000	.023100	.002100	.....	.....	
16,000	80,000	.026000	.002900			Tensile strength.
16,400	82,000	.028750	.002750	.....	.....	
16,800	84,000	.032000	.003250	.....	.....	
17,200	86,000	.035250	.003250	.....	.....	
17,600	88,000	.039500	.004250	.....	.....	
18,000	90,000	.044000	.004500	.....	.....	
18,400	92,000	.049350	.005350	.....	.....	
18,800	94,000	.051250	.006900	.....	.....	
19,200	96,000	.0650	.008750	.....	.....	
19,600	98,000	.0900	.0250	.....	.....	
19,920	99,600	.1250	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	99,600
Elastic limit per square inch of original section	do...	51,000
Elongation per inch after rupture	inch..	0.1600
Elongation per inch under strain at elastic limit	do...	.002050
Reduction in diameter at point of rupture	do...	.075
Reduction in area after rupture, per centum of original section		27.4
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface, granular; dull spot at circumference; opened cracks in stem near point of rupture.		
Elongation of inch sections	".11, ".21*	

No. 2378.

Marks, ^{32 T H₄}
T₂

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	.000100	.000100	
2,000	10,000	.000450	.000250	.000100	0.	
3,000	15,000	.000650	.000200	.000100	0.	
4,000	20,000	.000850	.000200	.000100	0.	
5,000	25,000	.001050	.000200	.000150	.000050	
6,000	30,000	.001300	.000250	.000150	0.	
7,000	35,000	.001450	.000150	.....	.....	
8,000	40,000	.001600	.000150	.....	.....	
9,000	45,000	.001800	.000200	.....	.....	
10,000	50,000	.002000	.000200			Elastic limit.
10,200	51,000	.002100	.000100	.....	.....	
10,400	52,000	.002400	.000300	.....	.....	
10,600	53,000	.003300	.000900	.....	.....	
10,800	54,000	.004500	.001200	.....	.....	
11,000	55,000	.005550	.001050	.....	.....	
11,200	56,000	.006100	.000550	.....	.....	
11,400	57,000	.007050	.000950	.....	.....	
11,600	58,000	.007850	.000800	.....	.....	
11,800	59,000	.008550	.000700	.....	.....	
12,000	60,000	.009400	.000850	.....	.....	
12,400	62,000	.011000	.001600	.....	.....	
12,800	64,000	.012400	.001400	.....	.....	
13,200	66,000	.014000	.001600	.....	.....	
13,600	68,000	.015600	.001600	.....	.....	
14,000	70,000	.017500	.001900	.....	.....	
14,400	72,000	.019550	.002050	.....	.....	
14,800	74,000	.022000	.002450	.....	.....	
15,200	76,000	.024350	.002350	.....	.....	
15,600	78,000	.026550	.002200	.....	.....	
16,000	80,000	.028550	.002000	.....	.....	
16,400	82,000	.031500	.002950	.....	.....	
16,800	84,000	.035000	.003500	.....	.....	
17,200	86,000	.038250	.003250	.....	.....	
17,600	88,000	.042250	.004000	.....	.....	
18,000	90,000	.047500	.005250	.....	.....	
18,400	92,000	.053750	.006250	.....	.....	
18,800	94,000	.0600	.006250	.....	.....	
19,200	96,000	.0700	.0100	.....	.....	
19,600	98,000	.0900	.0200	.....	.....	
19,860	99,300	.1300	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section pounds.. 99,300
 Elastic limit per square inch of original section..... do... 51,000
 Elongation per inch after rupture..... inch.. 0.1800
 Elongation per inch under strain at elastic limit do... .002100
 Reduction in diameter at point of rupture do... .985
 Reduction in area after rupture, per centum of original section 30.7
 Position of rupture ".80 from neck
 Character of broken surface, granular; dull spot at circumference; opened cracks in surface of stem,
 near point of rupture.
 Elongation of inch sections..... ".12, ".24*

No. 2379.

Marks, $^{32}T H_4$
 T_3 Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000250	.000100	0.	-----	
3,000	15,000	.000450	.000200	0.	-----	
4,000	20,000	.000650	.000200	0.	-----	
5,000	25,000	.000800	.000150	0.	-----	
6,000	30,000	.001000	.000200	0.	-----	
7,000	35,000	.001200	.000200	-----	-----	
8,000	40,000	.001400	.000200	-----	-----	
9,000	45,000	.001550	.000150	-----	-----	
10,000	50,000	.001750	.000200	-----	-----	Elastic limit.
10,200	51,000	.001800	.000050	-----	-----	
10,400	52,000	.001850	.000050	-----	-----	
10,600	53,000	.001950	.000100	-----	-----	
10,800	54,000	.002050	.000100	-----	-----	
11,000	55,000	.002300	.000250	-----	-----	
11,200	56,000	.002900	.000600	-----	-----	
11,400	57,000	.004050	.001150	-----	-----	
11,600	58,000	.004750	.000700	-----	-----	
11,800	59,000	.005250	.000500	-----	-----	
12,000	60,000	.006550	.001300	-----	-----	
12,400	62,000	.008300	.001750	-----	-----	
12,800	64,000	.010350	.002050	-----	-----	
13,200	66,000	.011750	.001400	-----	-----	
13,600	68,000	.013750	.002000	-----	-----	
14,000	70,000	.015900	.002150	-----	-----	
14,400	72,000	.017750	.001850	-----	-----	
14,800	74,000	.019750	.002000	-----	-----	
15,200	76,000	.022000	.002250	-----	-----	
15,600	78,000	.024 50	.002250	-----	-----	
16,000	80,000	.026800	.002550	-----	-----	
16,400	82,000	.029750	.002950	-----	-----	
16,800	84,000	.032750	.003000	-----	-----	
17,200	86,000	.036750	.004000	-----	-----	
17,600	88,000	.040600	.003850	-----	-----	
18,000	90,000	.045000	.004400	-----	-----	
18,400	92,000	.051000	.006000	-----	-----	
18,800	94,000	.0600	.0090	-----	-----	
19,200	96,000	.0650	.0050	-----	-----	
19,600	98,000	.0850	.0200	-----	-----	
19,920	99,600	.1300	.0450	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	99,600
Elastic limit per square inch of original section	do...	54,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit	do...	.002050
Reduction in diameter at point of rupture	do...	.075
Reduction in area after rupture, per centum of original section		27.4
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	" .25*, ".15	

No. 2466.

Marks, $\frac{32}{T_1} T H_5$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	.....	.....	
2,000	10,000	.000200	.000100	.....	.....	
3,000	15,000	.000350	.000150	.....	.....	
4,000	20,000	.000550	.000200	.....	.....	
5,000	25,000	.000750	.000200	.....	.....	
6,000	30,000	.000900	.000150	.....	.....	
7,000	35,000	.001100	.000200	.....	.....	
8,000	40,000	.001250	.000150	.....	.....	
9,000	45,000	.001450	.000200	.....	.....	
10,000	50,000	.001650	.000200	.....	.....	
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.001700	0.	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001800	.000050	.....	.....	
11,000	55,000	.001850	.000050	.....	.....	
11,200	56,000	.001900	.000050	.....	.....	Elastic limit.
11,400	57,000	.002300	.000400	.....	.....	
11,600	58,000	.003100	.000800	.....	.....	
11,800	59,000	.004900	.001800	.....	.....	
12,000	60,000	.006100	.001200	.....	.....	
12,400	62,000	.007750	.001650	.....	.....	
12,800	64,000	.009550	.001800	.....	.....	
13,200	66,000	.011050	.001500	.....	.....	
13,600	68,000	.012500	.001450	.....	.....	
14,000	70,000	.014300	.001800	.....	.....	
14,400	72,000	.016250	.001950	.....	.....	
14,800	74,000	.018500	.002250	.....	.....	
15,200	76,000	.020250	.001750	.....	.....	
15,600	78,000	.022500	.002250	.....	.....	
16,000	80,000	.025000	.002500	.....	.....	
16,400	82,000	.027550	.002550	.....	.....	
16,800	84,000	.030000	.002450	.....	.....	
17,200	86,000	.033550	.003550	.....	.....	
17,600	88,000	.037000	.003450	.....	.....	
18,000	90,000	.041000	.004000	.....	.....	
18,400	92,000	.046100	.005100	.....	.....	
18,800	94,000	.0550	.0089	.....	.....	
19,200	96,000	.0600	.0050	.....	.....	
19,600	98,000	.0700	.0100	.....	.....	
20,000	100,000	.1000	.0300	.....	.....	
20,180	100,900	.1350	.0350	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	100,900
Elastic limit per square inch of original section	do ..	56,000
Elongation per inch after rupture	inch ..	0.1900
Elongation per inch under strain at elastic limit	do ..	.001900
Reduction in diameter at point of rupture	do ..	.095
Reduction in area after rupture, per centum of original section		34.0
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	".25*, ".13	

No. 2467.

Marks, $^{32}T H_5$ Diameter, $^{11}.505$.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001200	.000250	.....	.....	
8,000	40,000	.001350	.000150	.....	.....	
9,000	45,000	.001550	.000200	.....	.....	
10,000	50,000	.001700	.000150	.....	.....	
10,200	51,000	.001700	0.	.....	.....	
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.001800	.000050	.....	.....	
10,800	54,000	.001800	0.	.....	.....	
11,000	55,000	.001850	.000050	.....	.....	
11,200	56,000	.001900	.000050	.....	.....	Elastic limit.
11,400	57,000	.002500	.000600	.....	.....	
11,600	58,000	.004550	.002050	.....	.....	
11,800	59,000	.006000	.001450	.....	.....	
12,000	60,000	.006900	.000900	.....	.....	
12,400	62,000	.008250	.001350	.....	.....	
12,800	64,000	.009700	.001450	.....	.....	
13,200	66,000	.011400	.001700	.....	.....	
13,600	68,000	.012850	.001450	.....	.....	
14,000	70,000	.014900	.002050	.....	.....	
14,400	72,000	.016750	.001850	.....	.....	
14,800	74,000	.018750	.002000	.....	.....	
15,200	76,000	.020600	.001850	.....	.....	
15,600	78,000	.023150	.002550	.....	.....	
16,000	80,000	.025400	.002250	.....	.....	
16,400	82,000	.028100	.002700	.....	.....	
16,800	84,000	.030900	.002800	.....	.....	
17,200	86,000	.034250	.003350	.....	.....	
17,600	88,000	.038050	.003800	.....	.....	
18,000	90,000	.042250	.004200	.....	.....	
18,400	92,000	.047500	.005250	.....	.....	
18,800	94,000	.053250	.005750	.....	.....	
19,200	96,000	.0600	.006750	.....	.....	
19,600	98,000	.0750	.0150	.....	.....	
20,000	100,000	.1000	.0250	.....	.....	
20,100	100,500	.1350	.0350	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section pounds.. 100 500
 Elastic limit per square inch of original section do .. 56,000
 Elongation per inch after rupture inch.. 0.1850
 Elongation per inch under strain at elastic limit do .. .001900
 Reduction in diameter at point of rupture do .. .095
 Reduction in area after rupture, per centum of original section 34.0
 Position of rupture $^{11}.05$ from neck
 Character of broken surface granular, 60 per centum; silky, 40 per centum
 Elongation of inch sections $^{11}.22^*$, $^{11}.1$

No. 2468.

Marks, ^{32 T H_s}
_{T₃}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0	Initial load.
1,000	5,000	.000200	.000200	0.	-----	
2,000	10,000	.000450	.000250	0.	-----	
3,000	15,000	.000650	.000200	0.	-----	
4,000	20,000	.000800	.000150	0.	-----	
5,000	25,000	.001000	.000200	0.	-----	
6,000	30,000	.001200	.000200	.000050	.000050	
7,000	35,000	.001300	.000100	-----	-----	
8,000	40,000	.001450	.000150	-----	-----	
9,000	45,000	.001700	.000250	-----	-----	
10,000	50,000	.001850	.000150	-----	-----	Elastic limit.
10,200	51,000	.001900	.000050	-----	-----	
10,400	52,000	.002000	.000100	-----	-----	
10,600	53,000	.002200	.000200	-----	-----	
10,800	54,000	.002400	.000200	-----	-----	
11,000	55,000	.002700	.001300	-----	-----	
11,200	56,000	.005250	.001550	-----	-----	
11,400	57,000	.006100	.000850	-----	-----	
11,600	58,000	.006750	.000650	-----	-----	
11,800	59,000	.007600	.000850	-----	-----	
12,000	60,000	.008600	.001000	-----	-----	
12,400	62,000	.010100	.001500	-----	-----	
12,800	64,000	.012000	.001900	-----	-----	
13,200	66,000	.013500	.001500	-----	-----	
13,600	68,000	.015500	.002000	-----	-----	
14,000	70,000	.017100	.001600	-----	-----	
14,400	72,000	.019250	.002150	-----	-----	
14,800	74,000	.021100	.001850	-----	-----	
15,200	76,000	.023500	.002400	-----	-----	
15,600	78,000	.026050	.002550	-----	-----	
16,000	80,000	.029000	.002950	-----	-----	Tensile strength.
16,400	82,000	.032500	.003500	-----	-----	
16,800	84,000	.035150	.002650	-----	-----	
17,200	86,000	.039000	.003850	-----	-----	
17,600	88,000	.043500	.004500	-----	-----	
18,000	90,000	.048500	.005000	-----	-----	
18,400	92,000	.0550	.0065	-----	-----	
18,800	94,000	.0600	.0050	-----	-----	
19,200	96,000	.0800	.0200	-----	-----	
19,560	97,800	.1200	.0400	-----	-----	

General summary.

Tensile strength per square inch of original section pounds.. 97,800
 Elastic limit per square inch of original section do... 52,000
 Elongation per inch after rupture inch.. 0.1750
 Elongation per inch under strain at elastic limit do... .002000
 Reduction in diameter at point of rupture do... .075
 Reduction in area after rupture, per centum of original section 27.4
 Position of rupture 1 inch from neck
 Character of broken surface, granular; dull spot at circumference; opened cracks in stem in vicinity
 of rupture.
 Elongation of inch sections ".20*, ".15

No. 2285.

Marks, ³²T H₆
T₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000250	.000150	0.	-----	
3,000	15,000	.000400	.000150	0.	-----	
4,000	20,000	.000550	.000150	0.	-----	
5,000	25,000	.000750	.000200	0.	-----	
6,000	30,000	.000950	.000200	0.	-----	
7,000	35,000	.001200	.000250	0.	-----	
8,000	40,000	.001350	.000150	0.	-----	
9,000	45,000	.001500	.000150	0.	-----	
10,000	50,000	.001850	.000350	.000150	.000150	Elastic limit.
10,200	51,000	.002100	.000250	-----	-----	
10,400	52,000	.002200	.000100	-----	-----	
10,600	53,000	.002250	.000050	-----	-----	
10,800	54,000	.005000	.002750	-----	-----	
11,000	55,000	.007200	.002200	-----	-----	
11,200	56,000	.007900	.000700	-----	-----	
11,400	57,000	.008600	.000700	-----	-----	
11,600	58,000	.009300	.000700	-----	-----	
11,800	59,000	.010000	.000700	-----	-----	
12,000	60,000	.011150	.001150	-----	-----	Tensile strength.
12,400	62,000	.012500	.001450	-----	-----	
12,800	64,000	.014250	.001750	-----	-----	
13,200	66,000	.016050	.001800	-----	-----	
13,600	68,000	.017900	.001850	-----	-----	
14,000	70,000	.019750	.001850	-----	-----	
14,400	72,000	.022000	.002250	-----	-----	
14,800	74,000	.024000	.002000	-----	-----	
15,200	76,000	.026550	.002550	-----	-----	
15,000	78,000	.029000	.002450	-----	-----	
16,000	80,000	.031750	.002750	-----	-----	
16,400	82,000	.035000	.003250	-----	-----	
16,800	84,000	.038300	.003300	-----	-----	
17,200	86,000	.042600	.004300	-----	-----	
17,600	88,000	.047850	.005250	-----	-----	
18,000	90,000	.053250	.005400	-----	-----	
18,400	92,000	.0600	.006750	-----	-----	
18,800	94,000	.0700	.0100	-----	-----	
19,200	96,000	.0950	.0250	-----	-----	
19,550	97,750	.1400	.0450	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	97,750
Elastic limit per square inch of original section	do...	53,000
Elongation per inch after rupture	inch..	0.2100
Elongation per inch under strain at elastic limit	do...	.002250
Reduction in diameter at point of rupture	do...	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	silky; fine granulation at circumference	
Elongation of inch sections	.31", .11	

No. 2286.

Marks, ³² T H_c
T₂

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000200	.000100	0.	-----	
3,000	15,000	.000350	.000150	0.	-----	
4,000	20,000	.000500	.000150	0.	-----	
5,000	25,000	.000650	.000150	0.	-----	
6,000	30,000	.000800	.000150	0.	-----	
7,000	35,000	.001000	.000200	0.	-----	
8,000	40,000	.001150	.000150	0.	-----	
9,000	45,000	.001450	.000300	0.	-----	
10,000	50,000	.001750	.000300	0.	-----	
10,200	51,000	.001800	.000050	-----	-----	
10,400	52,000	.001850	.000050	-----	-----	Elastic limit.
		.005250	.003400	-----	-----	
10,600	53,000	.006600	.001350	-----	-----	
10,800	54,000	.007200	.000600	-----	-----	
11,000	55,000	.007950	.000750	-----	-----	
11,200	56,000	.008750	.000800	-----	-----	
11,400	57,000	.009600	.000850	-----	-----	
11,600	58,000	.010350	.000750	-----	-----	
11,800	59,000	.011250	.000900	-----	-----	
12,000	60,000	.012150	.000900	-----	-----	
12,400	62,000	.013650	.001500	-----	-----	
12,800	64,000	.015300	.001650	-----	-----	
13,200	66,000	.017400	.002100	-----	-----	
13,600	68,000	.020000	.002600	-----	-----	
14,000	70,000	.021700	.001700	-----	-----	
14,400	72,000	.023250	.001550	-----	-----	
14,800	74,000	.026400	.003150	-----	-----	
15,200	76,000	.029000	.002600	-----	-----	
15,600	78,000	.031200	.002200	-----	-----	
16,000	80,000	.035250	.004050	-----	-----	
16,400	82,000	.039250	.004000	-----	-----	
16,800	84,000	.044000	.004750	-----	-----	
17,200	86,000	.048500	.004500	-----	-----	
17,600	88,000	.055500	.007000	-----	-----	
18,000	90,000	.0650	.0095	-----	-----	
18,400	92,000	.0800	.0150	-----	-----	
18,800	94,000	.0950	.0150	-----	-----	
19,120	95,600	.1400	.0450	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	95,600
Elastic limit per square inch of original section	do ..	52,000
Elongation per inch after rupture	inch..	0.2250
Elongation per inch under strain at elastic limit	do ..	.001850
Reduction in diameter at point of rupture	do ..	.105
Reduction in area after rupture, per centum of original section ..		37.1
Position of rupture		".55 from neck
Character of broken surface	silky, with trace of granulation	
Elongation of inch sections		".32*, ".13

No. 2287.

Marks, $^{32}T H_6$ Diameter, T_3 .505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001450	.000200	0.	.....	
10,000	50,000	.001600	.000150	0.		Elastic limit.
10,200	51,000	.001700	.000100	.....	.....	
10,400	52,000	.001800	.000100	.....	.....	
10,600	53,000	.004600	.002800	.....	.....	
10,800	54,000	.005500	.000900	.....	.....	
11,000	55,000	.006250	.000750	.....	.....	
11,200	56,000	.007000	.000750	.....	.....	
11,400	57,000	.007850	.000850	.....	.....	
11,600	58,000	.008650	.000800	.....	.....	
11,800	59,000	.009250	.000600	.....	.....	
12,000	60,000	.010000	.000750	.....	.....	
12,400	62,000	.011750	.001750	.....	.....	
12,800	64,000	.013250	.001500	.....	.....	
13,200	66,000	.015200	.001950	.....	.....	
13,600	68,000	.017000	.001800	.....	.....	
14,000	70,000	.019250	.002250	.....	.....	
14,400	72,000	.020850	.001600	.....	.....	
14,800	74,000	.023000	.002150	.....	.....	
15,200	76,000	.025400	.002400	.....	.....	
15,600	78,000	.028000	.002600	.....	.....	
16,000	80,000	.030600	.002600	.....	.....	
16,400	82,000	.033550	.002950	.....	.....	
16,800	84,000	.037150	.003600	.....	.....	
17,200	86,000	.041050	.003900	.....	.....	
17,600	88,000	.045850	.004800	.....	.....	
18,000	90,000	.052000	.006150	.....	.....	
18,400	92,000	.0600	.0080	.....	.....	
18,800	94,000	.0700	.0100	.....	.....	
19,200	96,000	.0900	.0200	.....	.....	
19,600	98,000	.1200	.0300	.....	.....	
19,620	98,100	.1500	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	98,100
Elastic limit per square inch of original section	do...	52,000
Elongation per inch after rupture	inch..	0.2400
Elongation per inch under strain at elastic limit	do...	.001800
Reduction in diameter at point of rupture	do...	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture	1 inch from neck	
Character of broken surface	granular, 50 per centum; silky, 50 per centum	
Elongation of inch sections	".30*, ".18	

No. 2451.

Marks, $^{32}T H_7$
 T_1 Diameter, $\frac{1}{2}$ ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001150	.000200	.....	.....	
8,000	40,000	.001350	.000200	.....	.....	
9,000	45,000	.001550	.000200	.....	.....	
10,000	50,000	.001700	.000150			Elastic limit.
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001850	.000100	.....	.....	
10,600	53,000	.006200	.004350	.....	.....	
10,800	54,000	.006750	.000550	.....	.....	
11,000	55,000	.007350	.000600	.....	.....	
11,200	56,000	.008100	.000750	.....	.....	
11,400	57,000	.008850	.000750	.....	.....	
11,600	58,000	.009650	.000800	.....	.....	
11,800	59,000	.010500	.000850	.....	.....	
12,000	60,000	.011300	.000800			
12,400	62,000	.013050	.001750	.....	.....	
12,800	64,000	.014650	.001600	.....	.....	
13,200	66,000	.016250	.001600	.....	.....	
13,600	68,000	.018200	.001950	.....	.....	
14,000	70,000	.020050	.001850	.....	.....	
14,400	72,000	.022250	.002200	.....	.....	
14,800	74,000	.024850	.002600	.....	.....	
15,200	76,000	.027350	.002500	.....	.....	
15,600	78,000	.029750	.002400	.....	.....	
16,000	80,000	.032550	.002800			Tensile strength.
16,400	82,000	.036050	.003500	.....	.....	
16,800	84,000	.040000	.003950	.....	.....	
17,200	86,000	.043750	.003750	.....	.....	
17,600	88,000	.049000	.005250	.....	.....	
18,000	90,000	.055000	.006000	.....	.....	
18,400	92,000	.0600	.0050	.....	.....	
18,800	94,000	.0750	.0150	.....	.....	
19,200	96,000	.0900	.0150	.....	.....	
19,520	97,600	.1500	.0600	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	97,600
Elastic limit per square inch of original section	do...	52,000
Elongation per inch after rupture	inch..	0.2250
Elongation per inch under strain at elastic limit	do...	.001850
Reduction in diameter at point of rupture	do...	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture		".85 from neck
Character of broken surface	silky; traces of granulation	
Elongation of inch sections		".28*, ".17

No. 2452.

Marks, $^{32}T H_7$
 T_2

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001100	.000200	.....	.....	
8,000	40,000	.001250	.000150	.....	.....	
9,000	45,000	.001400	.000150	.....	.....	
10,000	50,000	.001550	.000150			Elastic limit.
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.002000	.000400	.....	.....	
10,600	53,000	.005750	.003750	.....	.....	
10,800	54,000	.006750	.001000	.....	.....	
11,000	55,000	.007500	.000750	.....	.....	
11,200	56,000	.008150	.000650	.....	.....	
11,400	57,000	.009000	.000850	.....	.....	
11,600	58,000	.009700	.000700	.....	.....	
11,800	59,000	.010600	.000900	.....	.....	
12,000	60,000	.011300	.000700	.....	.....	
12,400	62,000	.012600	.001300	.....	.....	
12,800	64,000	.014600	.002000	.....	.....	
13,200	66,000	.016250	.001650	.....	.....	
13,600	68,000	.018100	.001850	.....	.....	
14,000	70,000	.020100	.002000	.....	.....	
14,400	72,000	.022300	.002200	.....	.....	
14,800	74,000	.024700	.002400	.....	.....	
15,200	76,000	.027100	.002400	.....	.....	
15,600	78,000	.029750	.002650	.....	.....	
16,000	80,000	.032750	.003000	.....	.....	
16,400	82,000	.036050	.003300	.....	.....	
16,800	84,000	.039800	.003750	.....	.....	
17,200	86,000	.044000	.004200	.....	.....	
17,600	88,000	.049500	.005500	.....	.....	
18,000	90,000	.055500	.006000	.....	.....	
18,400	92,000	.0650	.0095	.....	.....	
18,700	93,500					Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	93,500
Elastic limit per square inch of original section.....	do...	51,000
Elongation per inch after rupture.....	inch..	0.0700
Elongation per inch under strain at elastic limit.....	do...	.001600
Reduction in diameter at point of rupture.....	do...	.025
Reduction in area after rupture, per centum of original section.....		9.5
Position of rupture.....	".30 inch from neck	
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections.....	".08* ".06	

No. 2453.

Marks, ³²T H₇
_{T₃}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000300	.000150	0.	-----	
3,000	15,000	.000500	.000200	0.	-----	
4,000	20,000	.000700	.000200	0.	-----	
5,000	25,000	.000900	.000200	0.	-----	
6,000	30,000	.001050	.000150	0.	-----	
7,000	35,000	.001200	.000150	-----	-----	
8,000	40,000	.001400	.000200	-----	-----	
9,000	45,000	.001550	.000150	-----	-----	
10,000	50,000	.001750	.000200	-----	-----	Elastic limit.
10,200	51,000	.001800	.000950	-----	-----	
10,400	52,000	.001950	.000150	-----	-----	
10,600	53,000	.003100	.001150	-----	-----	
10,800	54,000	.006100	.003000	-----	-----	
11,000	55,000	.007000	.000900	-----	-----	
11,200	56,000	.007600	.000600	-----	-----	
11,400	57,000	.008100	.000500	-----	-----	
11,600	58,000	.008700	.000600	-----	-----	
11,800	59,000	.009550	.000850	-----	-----	
12,000	60,000	.010300	.000750	-----	-----	Tensile strength.
12,400	62,000	.012000	.001700	-----	-----	
12,800	64,000	.013750	.001750	-----	-----	
13,200	66,000	.015500	.001750	-----	-----	
13,600	68,000	.017100	.001600	-----	-----	
14,000	70,000	.019000	.001900	-----	-----	
14,400	72,000	.021000	.002000	-----	-----	
14,800	74,000	.023000	.002000	-----	-----	
15,200	76,000	.025150	.002150	-----	-----	
15,600	78,000	.027750	.002600	-----	-----	
16,000	80,000	.030600	.002850	-----	-----	
16,400	82,000	.033500	.002900	-----	-----	
16,800	84,000	.037050	.003550	-----	-----	
17,200	86,000	.042000	.004950	-----	-----	
17,600	88,000	.046000	.004000	-----	-----	
18,000	90,000	.051300	.005300	-----	-----	
18,400	92,000	.0550	.0037	-----	-----	
18,800	94,000	.0600	.0050	-----	-----	
19,200	96,000	.0800	.0200	-----	-----	
19,600	98,000	.1000	.0200	-----	-----	
19,760	98,800	-----	-----	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	98,800
Elastic limit per square inch of original section	do..	51,000
Elongation per inch after rupture	inch..	0.2350
Elongation per inch under strain at elastic limit	do..	.001800
Reduction in diameter at point of rupture	do..	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture	"	.70 from neck
Character of broken surface		.. silky
Elongation of inch sections	"	.16, ".31*

[Additional specimens.]

No. 2441.

Marks, ^{32 T H₇}
_{T₄}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000350	.000250	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000700	.000150	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001050	.000200	0.	.....	
7,000	35,000	.001200	.000150	0.	.....	
8,000	40,000	.001350	.000150	.....	.....	
9,000	45,000	.001550	.000200	.....	.....	
10,000	50,000	.001700	.000150	.....	.....	
11,000	55,000	.001900	.000200	.....	.....	
11,200	56,000	.001950	.000050	.....	.....	
11,400	57,000	.001950	0.	.....	.....	
11,600	58,000	.002000	.000050	.....	.....	
11,800	59,000	.002050	.000050	.....	.....	
12,000	60,000	.002100	.000050			Elastic limit.
12,200	61,000	.002500	.000400	.....	.....	
12,400	62,000	.003150	.000650	.....	.....	
12,600	63,000	.004150	.001000	.....	.....	
12,800	64,000	.006200	.002050	.....	.....	
13,200	66,000	.008250	.002050	.....	.....	
13,600	68,000	.010300	.002050	.....	.....	
14,000	70,000	.012500	.002200	.....	.....	
14,400	72,000	.014800	.002300	.....	.....	
14,800	74,000	.017000	.002200	.....	.....	
15,200	76,000	.019050	.002050	.....	.....	
15,600	78,000	.020950	.001900	.....	.....	
16,000	80,000	.023100	.002150	.....	.....	
16,400	82,000	.025750	.002650	.....	.....	
16,800	84,000	.029250	.003500	.....	.....	
17,200	86,000	.032000	.002750	.....	.....	
17,600	88,000	.036000	.004000	.....	.....	
18,000	90,000	.041100	.005100	.....	.....	
18,400	92,000	.0450	.0039			Tensile strength.
18,800	94,000	.0500	.0050	.....	.....	
19,200	96,000	.0600	.0100	.....	.....	
19,600	98,000	.0750	.0150	.....	.....	
20,000	100,000	.1050	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	100,000
Elastic limit per square inch of original section.....	do. ..	60,000
Elongation per inch after rupture.....	inch..	0.2100
Elongation per inch under strain at elastic limit.....	do.	.002100
Reduction in diameter at point of rupture.....	do.	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	".65 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".30*, ".12	

No. 2442.

Marks, ^{32 T H.}_{T₅}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001300	.000250	0.	.....	
9,000	45,000	.001500	.000200	0.	.....	
10,000	50,000	.001600	.000100	.....	.....	
10,200	51,000	.001650	.000050	.....	.....	Elastic limit.
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.004650	.002950	.....	.....	
10,800	54,000	.006850	.002200	.....	.....	
11,000	55,000	.007900	.001050	.....	.....	
11,200	56,000	.008750	.000850	.....	.....	
11,400	57,000	.009750	.001000	.....	.....	
11,600	58,000	.010500	.000750	.....	.....	
11,800	59,000	.011250	.000750	.....	.....	
12,000	60,000	.011750	.000500	.....	.....	
12,400	62,000	.013500	.001750	.....	.....	
12,800	64,000	.015250	.001750	.....	.....	
13,200	66,000	.017050	.001800	.....	.....	
13,600	68,000	.020500	.003450	.....	.....	
14,000	70,000	.022500	.002000	.....	.....	
14,400	72,000	.024500	.002000	.....	.....	
14,800	74,000	.027000	.002500	.....	.....	
15,200	76,000	.030000	.003000	.....	.....	
15,600	78,000	.033000	.003000	.....	.....	
16,000	80,000	.037000	.004000	.....	.....	
16,400	82,000	.042000	.005000	.....	.....	
16,800	84,000	.046500	.004500	.....	.....	
17,200	86,000	.053500	.007000	.....	.....	
17,600	88,000	.0600	.0065	.....	.....	
18,000	90,000	.0750	.0150	.....	.....	
18,400	92,000	.0900	.0150	.....	.....	
18,780	93,900	.1400	.0500	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	93,900
Elastic limit per square inch of original section	do ..	52,000
Elongation per inch after rupture	inch..	0.2600
Elongation per inch under strain at elastic limit	do...	.01700
Reduction in diameter at point of rupture	do...	.145
Reduction in area after rupture, per centum of original section		49.1
Position of rupture	at middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".25*, ".27*	

No. 2443.

Marks, ^{32 T H,}
T₆
Diameter, ".505.
Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000650	.000250	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.000950	.000100	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001300	.000200	0.	.....	
9,000	45,000	.001450	.000150	0.	.....	
10,000	50,000	.001600	.000150	0.		Elastic limit.
10,200	51,000	.001600	0.	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.001750	.000050	.....	.....	
11,000	55,000	.001750	0.	.....	.....	
11,200	56,000	.005000	.003250	.....	.....	
11,400	57,000	.007100	.002100	.....	.....	
11,600	58,000	.008000	.000900	.....	.....	
11,800	59,000	.008750	.000750	.....	.....	
12,000	60,000	.009700	.000950			Tensile strength.
12,400	62,000	.011350	.001650	.....	.....	
12,800	64,000	.013000	.001650	.....	.....	
13,200	66,000	.014650	.001650	.....	.....	
13,600	68,000	.016500	.001850	.....	.....	
14,000	70,000	.018750	.002250	.....	.....	
14,400	72,000	.021000	.002250	.....	.....	
14,800	74,000	.023500	.002500	.....	.....	
15,200	76,000	.025600	.002100	.....	.....	
15,600	78,000	.028500	.002900	.....	.....	
16,000	80,000	.032000	.003500			
16,400	82,000	.036500	.004500	.....	.....	
16,800	84,000	.040000	.003500	.....	.....	
17,200	86,000	.043750	.003750	.....	.....	
17,600	88,000	.050000	.006250	.....	.....	
18,000	90,000	.0550	.0050	.....	.....	
18,400	92,000	.0650	.0100	.....	.....	
18,800	94,000	.0850	.0200	.....	.....	
19,200	96,000	.1050	.0200	.....	.....	
19,280	96,400	.1550	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	96,400
Elastic limit per square inch of original section.....	do...	55,000
Elongation per inch after rupture.....	inch..	0.2450
Elongation per inch under strain at elastic limit.....	do...	.001750
Reduction in diameter at point of rupture.....	do...	.145
Reduction in area after rupture, per centum of original section.....	.....	49.1
Position of rupture.....	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".34*, ".15	

No. 2454.

Marks, ³²T H_s
T₁

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000850	.000250	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001150	.000150	.....	.....	
8,000	40,000	.001350	.000200	.....	.....	
9,000	45,000	.001500	.000150	.....	.....	
10,000	50,000	.001650	.000150			Elastic limit.
10,200	51,000	.001750	.000100	.....	.....	
10,400	52,000	.001850	.000100	.....	.....	
10,600	53,000	.001900	.000050	.....	.....	
10,800	54,000	.006100	.004200	.....	.....	
11,000	55,000	.007450	.001350	.....	.....	
11,200	56,000	.008250	.000800	.....	.....	
11,400	57,000	.008700	.000450	.....	.....	
11,600	58,000	.009300	.000600	.....	.....	
11,800	59,000	.010150	.000850	.....	.....	
12,000	60,000	.010900	.000750	.....	.....	
12,400	62,000	.012400	.001500	.....	.....	
12,800	64,000	.014050	.001650	.....	.....	
13,200	66,000	.015750	.001700	.....	.....	
13,600	68,000	.017500	.001750	.....	.....	
14,000	70,000	.019550	.002050	.....	.....	
14,400	72,000	.022000	.002450	.....	.....	
14,800	74,000	.024000	.002000	.....	.....	
15,200	76,000	.026700	.002700	.....	.....	
15,600	78,000	.029750	.003050	.....	.....	
16,000	80,000	.032250	.002500	.....	.....	
16,400	82,000	.035600	.003350	.....	.....	
16,800	84,000	.039500	.003900	.....	.....	
17,200	86,000	.044000	.004500	.....	.....	
17,600	88,000	.049000	.005000	.....	.....	
18,000	90,000	.054500	.005500	.....	.....	
18,400	92,000	.0600	.0055	.....	.....	
18,800	94,000	.0700	.0100	.....	.....	
19,200	96,000	.0900	.0200	.....	.....	
19,500	97,500	.1300	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	97,500
Elastic limit per square inch of original section.....	do ..	53,000
Elongation per inch after rupture.....	inch..	0.2300
Elongation per inch under strain at elastic limit.....	do...	.001900
Reduction in diameter at point of rupture.....	do...	.124
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".31*, ".15	

No. 2455.

Marks, $\frac{32}{T_2} T H_8$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001100	.000200	.....	.....	
8,000	40,000	.001250	.000150	.....	.....	
9,000	45,000	.001400	.000150	.....	.....	
10,000	50,000	.001550	.000150			Elastic limit.
10,200	51,000	.001550	0.	.....	.....	
10,400	52,000	.001600	.000050	.....	.....	
10,600	53,000	.004100	.002500	.....	.....	
10,800	54,000	.005500	.001400	.....	.....	
11,000	55,000	.007000	.001500	.....	.....	
11,200	56,000	.007750	.000750	.....	.....	
11,400	57,000	.008250	.000500	.....	.....	
11,600	58,000	.009250	.001000	.....	.....	
11,800	59,000	.010250	.001000	.....	.....	
12,000	60,000	.011000	.000750			
12,400	62,000	.012400	.001400	.....	.....	
12,800	64,000	.014050	.001650	.....	.....	
13,200	66,000	.015800	.001750	.....	.....	
13,600	68,000	.017500	.001750	.....	.....	
14,000	70,000	.020000	.002500	.....	.....	
14,400	72,000	.022250	.002250	.....	.....	
14,800	74,000	.024500	.002250	.....	.....	
15,200	76,000	.026750	.002250	.....	.....	
15,600	78,000	.029250	.002500	.....	.....	
16,000	80,000	.032000	.002750			Tensile strength.
16,400	82,000	.035650	.003650	.....	.....	
16,800	84,000	.039500	.003850	.....	.....	
17,200	86,000	.044750	.005250	.....	.....	
17,600	88,000	.050000	.005250	.....	.....	
18,000	90,000	.0550	.0050	.....	.....	
18,400	92,000	.0600	.0050	.....	.....	
18,800	94,000	.0700	.0100	.....	.....	
19,200	96,000	.0950	.0250	.....	.....	
19,390	96,950	.1250	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	96,950
Elastic limit per square inch of original section	do...	52,000
Elongation per inch after rupture	inch..	0.1900
Elongation per inch under strain at elastic limit	do...	.001600
Reduction in diameter at point of rupture	do ..	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface	silky; traces of granulation	
Elongation of inch sections	".27", ".11	

No. 2456.

Marks, $^{32}T H_8$
 T_3
 Diameter, $^{11}.505$.
 Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000200	.000100	0.	-----	
3,000	15,000	.000450	.000250	0.	-----	
4,000	20,000	.000600	.000150	0.	-----	
5,000	25,000	.000750	.000150	0.	-----	
6,000	30,000	.000950	.000200	0.	-----	
7,000	35,000	.001150	.000200	-----	-----	
8,000	40,000	.001300	.000150	-----	-----	
9,000	45,000	.001450	.000150	-----	-----	
10,000	50,000	.001650	.000200	-----	-----	Elastic limit.
10,200	51,000	.001650	0.	-----	-----	
10,400	52,000	.001700	.000050	-----	-----	
10,600	53,000	.003750	.002050	-----	-----	
10,800	54,000	.006000	.002250	-----	-----	
11,000	55,000	.007000	.001000	-----	-----	
11,200	56,000	.007650	.000650	-----	-----	
11,400	57,000	.008500	.000950	-----	-----	
11,600	58,000	.009250	.000750	-----	-----	
11,800	59,000	.010000	.000750	-----	-----	
12,000	60,000	.010750	.000750	-----	-----	
12,400	62,000	.012500	.001750	-----	-----	
12,800	64,000	.014150	.001650	-----	-----	
13,200	66,000	.015600	.001450	-----	-----	
13,600	68,000	.017550	.001950	-----	-----	
14,000	70,000	.019750	.002200	-----	-----	
14,400	72,000	.022100	.002350	-----	-----	
14,800	74,000	.024500	.002400	-----	-----	
15,200	76,000	.026550	.002050	-----	-----	
15,600	78,000	.029250	.002700	-----	-----	
16,000	80,000	.032000	.002750	-----	-----	Tensile strength.
16,400	82,000	.035500	.003500	-----	-----	
16,800	84,000	.039550	.004050	-----	-----	
17,200	86,000	.043500	.003950	-----	-----	
17,600	88,000	.048250	.004750	-----	-----	
18,000	90,000	.054500	.006250	-----	-----	
18,400	92,000	.0650	.0105	-----	-----	
18,800	94,000	.0750	.0100	-----	-----	
19,200	96,000	.0900	.0150	-----	-----	
19,520	97,600	.1400	.0500	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	97,600
Elastic limit per square inch of original section.....	do...	52,000
Elongation per inch after rupture.....	inch..	0.2250
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do...	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	1".15 from neck	
Character of broken surface.....	silky; trace of granulation	
Elongation of inch sections.....	".25*, ".20	

No. 2969.

Marks, $^{32}T H_2$
 T_1

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001100	.000150	.....	.....	
8,000	40,000	.001300	.000200	.....	.....	
9,000	45,000	.001500	.000200	.....	.....	
10,000	50,000	.001650	.000150	.....	.....	
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.001800	.000050	.....	.....	
10,800	54,000	.001800	0.			Elastic limit.
11,000	55,000	.003000	.001200	.....	.....	
11,200	56,000	.003750	.000750	.....	.....	
11,400	57,000	.004450	.000700	.....	.....	
11,600	58,000	.005150	.000700	.....	.....	
11,800	59,000	.006550	.001400	.....	.....	
12,000	60,000	.007500	.000950	.....	.....	
12,400	62,000	.009150	.001650	.....	.....	
12,800	64,000	.010650	.001500	.....	.....	
13,200	66,000	.012150	.001500	.....	.....	
13,600	68,000	.014050	.001900	.....	.....	
14,000	70,000	.016250	.002200	.....	.....	
14,400	72,000	.018500	.002250	.....	.....	
14,800	74,000	.020000	.001500	.....	.....	
15,200	76,000	.022100	.002100	.....	.....	
15,600	78,000	.024600	.002500	.....	.....	
16,000	80,000	.027000	.002400	.....	.....	
16,400	82,000	.029750	.002750	.....	.....	
16,800	84,000	.032500	.002750	.....	.....	
17,200	86,000	.036000	.003500	.....	.....	
17,600	88,000	.039900	.003900	.....	.....	
18,000	90,000	.044500	.004600	.....	.....	
18,400	92,000	.050000	.0055	.....	.....	
18,800	94,000	.0550	.0050	.....	.....	
19,200	96,000	.0600	.0050	.....	.....	
19,600	98,000	.0850	.0250	.....	.....	
19,920	99,600	.1150	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	99,600
Elastic limit per square inch of original section.....	do...	54,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do...	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	".55 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".31*, ".09	

No. 2470

Marks, ³²T H₉
T₂

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000300	.000150	0.	-----	
3,000	15,000	.000550	.000250	0.	-----	
4,000	20,000	.000750	.000200	0.	-----	
5,000	25,000	.000850	.000100	0.	-----	
6,000	30,000	.001150	.000300	0.	-----	
7,000	35,000	.001200	.000050	-----	-----	
8,000	40,000	.001400	.000200	-----	-----	
9,000	45,000	.001550	.000150	-----	-----	
10,000	50,000	.001700	.000150	-----	-----	Elastic limit.
10,200	51,000	.001750	.000050	-----	-----	
10,400	52,000	.001800	.000050	-----	-----	
10,600	53,000	.006550	.004750	-----	-----	
10,800	54,000	.007100	.000550	-----	-----	
11,000	55,000	.007750	.000650	-----	-----	
11,200	56,000	.008400	.000650	-----	-----	
11,400	57,000	.009150	.000750	-----	-----	
11,600	58,000	.010000	.000850	-----	-----	
11,800	59,000	.010750	.000750	-----	-----	
12,000	60,000	.011750	.001000	-----	-----	
12,400	62,000	.013000	.001250	-----	-----	
12,800	64,000	.015000	.002000	-----	-----	
13,200	66,000	.016800	.001800	-----	-----	
13,600	68,000	.018750	.001950	-----	-----	
14,000	70,000	.020650	.001900	-----	-----	
14,400	72,000	.023050	.002400	-----	-----	
14,800	74,000	.025300	.002250	-----	-----	
15,200	76,000	.028000	.002700	-----	-----	
15,600	78,000	.030600	.002600	-----	-----	
16,000	80,000	.033600	.003000	-----	-----	
16,400	82,000	.037050	.003450	-----	-----	
16,800	84,000	.040650	.003600	-----	-----	
17,200	86,000	.045600	.004950	-----	-----	
17,600	88,000	.051500	.005900	-----	-----	
18,000	90,000	.0550	.0035	-----	-----	
18,400	92,000	.0600	.0050	-----	-----	
18,800	94,000	.0800	.0200	-----	-----	
19,200	96,000	.1100	.0300	-----	-----	Tensile strength.
19,260	96,300	.1400	.0300	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	96,300
Elastic limit per square inch of original section.....	do...	52,000
Elongation per inch after rupture.....	inch..	0.2600
Elongation per inch under strain at elastic limit.....	do... •	.001800
Reduction in diameter at point of rupture.....	do...	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	"	.90 from neck
Character of broken surface.....		silky
Elongation of inch sections.....	"	.35*, ".17

No. 2471.

Marks, ³² T H₉Diameter, ^{T₃} .505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001150	.000200	.....	.....	
8,000	40,000	.001300	.000150	.....	.....	
9,000	45,000	.001450	.000150	.....	.....	
10,000	50,000	.001600	.000150			Elastic limit.
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001800	.000050	.....	.....	
11,000	55,000	.006300	.004500	.....	.....	
11,200	56,000	.007300	.001000	.....	.....	
11,400	57,000	.008000	.000700	.....	.....	
11,600	58,000	.008700	.000700	.....	.....	
11,800	59,000	.009500	.000800	.....	.....	
12,000	60,000	.010150	.000650	.....	.....	
12,400	62,000	.011800	.001650	.....	.....	
12,800	64,000	.013800	.002000	.....	.....	
13,200	66,000	.015400	.001600	.....	.....	
13,600	68,000	.017250	.001850	.....	.....	
14,000	70,000	.019100	.001850	.....	.....	
14,400	72,000	.021100	.002000	.....	.....	
14,800	74,000	.024000	.002900	.....	.....	
15,200	76,000	.025650	.001650	.....	.....	
15,600	78,000	.028250	.002600	.....	.....	
16,000	80,000	.031500	.003250	.....	.....	
16,400	82,000	.034500	.003000	.....	.....	
16,800	84,000	.038000	.003500	.....	.....	
17,200	86,000	.043500	.005500	.....	.....	
17,600	88,000	.049000	.005500	.....	.....	
18,000	90,000	.0550	.0060	.....	.....	
18,400	92,000	.0600	.0050	.....	.....	
18,800	94,000	.0700	.0100	.....	.....	
19,200	96,000	.0900	.0200	.....	.....	
19,450	97,250	.1350	.0450			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	97,250
Elastic limit per square inch of original section.....	do....	54,000
Elongation per inch after rupture.....	inch..	0.2300
Elongation per inch under strain at elastic limit.....	do....	.001800
Reduction in diameter at point of rupture.....	do....	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	" .33", ".13	

No. 2472.

Marks, $^{32}T H_{10}$ Diameter, T_1 .505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001150	.000150	.....	.....	
8,000	40,000	.001300	.000150	.....	.....	
9,000	45,000	.001450	.000150	.....	.....	
10,000	50,000	.001650	.000200	.....	.....	
10,200	51,000	.001700	.000050	.....	.....	Elastic limit.
10,400	52,000	.002150	.000450	.....	.....	
10,600	53,000	.004000	.001850	.....	.....	
10,800	54,000	.005600	.001600	.....	.....	
11,000	55,000	.006250	.000650	.....	.....	
11,200	56,000	.007000	.000750	.....	.....	
11,400	57,000	.007600	.000600	.....	.....	
11,600	58,000	.008350	.000750	.....	.....	
11,800	59,000	.009350	.001000	.....	.....	
12,000	60,000	.010150	.000800	.....	.....	
12,400	62,000	.012000	.001850	.....	.....	
12,800	64,000	.013600	.001600	.....	.....	
13,200	66,000	.015500	.001900	.....	.....	
13,600	68,000	.017000	.001500	.....	.....	
14,000	70,000	.019250	.002250	.....	.....	
14,400	72,000	.021300	.002050	.....	.....	
14,800	74,000	.023500	.002200	.....	.....	
15,200	76,000	.026100	.002600	.....	.....	
15,600	78,000	.029000	.002900	.....	.....	
16,000	80,000	.032050	.003050	.....	.....	
16,400	82,000	.035750	.003700	.....	.....	
16,800	84,000	.039250	.003500	.....	.....	
17,200	86,000	.044800	.005550	.....	.....	
17,600	88,000	.0500	.0052	.....	.....	
18,000	90,000	.0550	.0050	.....	.....	
18,400	92,000	.0650	.0100	.....	.....	
18,800	94,000	.0800	.0150	.....	.....	
19,200	96,000	.1050	.0250	.....	.....	
19,300	96,500	.1300	.0250	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	96,500
Elastic limit per square inch of original section.....	do...	51,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do...	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	".60 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".30*, ".10	

No. 2473.

Marks, $^{32}T H_{10}$
 T_2

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000400	.000250	0.	-----	
3,000	15,000	.000550	.000150	0.	-----	
4,000	20,000	.000700	.000150	0.	-----	
5,000	25,000	.000850	.000150	0.	-----	
6,000	30,000	.001000	.000150	0.	-----	
7,000	35,000	.001200	.000200	-----	-----	
8,000	40,000	.001350	.000150	-----	-----	
9,000	45,000	.001450	.000100	-----	-----	
9,600	48,000	.001550	.000100	-----	-----	Elastic limit.
9,800	49,000	.001600	.000050	-----	-----	
10,000	50,000	.002650	.000150	-----	-----	
10,200	51,000	.003500	.000950	-----	-----	
10,400	52,000	.004550	.001050	-----	-----	
10,600	53,000	.006100	.001550	-----	-----	
10,800	54,000	.006750	.000650	-----	-----	
11,000	55,000	.007750	.001000	-----	-----	
11,200	56,000	.008500	.000700	-----	-----	
11,400	57,000	.009250	.000750	-----	-----	
11,600	58,000	.010000	.000750	-----	-----	
11,800	59,000	.010600	.000600	-----	-----	
12,000	60,000	.011500	.000900	-----	-----	
12,400	62,000	.013050	.001550	-----	-----	
12,800	64,000	.015000	.001950	-----	-----	
13,200	66,000	.017000	.002000	-----	-----	
13,600	68,000	.018600	.001600	-----	-----	
14,000	70,000	.021000	.002400	-----	-----	
14,400	72,000	.023500	.002500	-----	-----	
14,800	74,000	.025750	.002250	-----	-----	
15,200	76,000	.028500	.002750	-----	-----	
15,600	78,000	.031600	.003100	-----	-----	
16,000	80,000	.035000	.003400	-----	-----	
16,400	82,000	.038500	.003500	-----	-----	
16,800	84,000	.043050	.004550	-----	-----	
17,200	86,000	.050000	.006950	-----	-----	
17,600	88,000	.0550	.0050	-----	-----	
18,000	90,000	.0600	.0050	-----	-----	
18,400	92,000	.0700	.0100	-----	-----	
18,800	94,000	.0950	.0250	-----	-----	Tensile strength.
19,040	95,200	.1450	.0500	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	95,200
Elastic limit per square inch of original section	do ..	49,000
Elongation per inch after rupture	inch..	0.2200
Elongation per inch under strain at elastic limit	do...	.001600
Reduction in diameter at point of rupture	do...	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture	".60 from neck	
Character of broken surface	silky; part of surface interspersed with fine granulation	
Elongation of inch sections	".29*, ".15	

No. 2474.

Marks, $^{32}T H_{10}$ Diameter, $\frac{11}{16}$.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000850	.000250	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001150	.000150	.....	.....	
8,000	40,000	.001350	.000200	.....	.....	
9,000	45,000	.001510	.000200	.....	.....	
10,000	50,000	.001700	.000150			Elastic limit.
10,200	51,000	.001700	0.	.....	.....	
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.001850	.000100	.....	.....	
10,800	54,000	.003750	.001900	.....	.....	
11,000	55,000	.005350	.001600	.....	.....	
11,200	56,000	.006150	.000800	.....	.....	
11,400	57,000	.007050	.000900	.....	.....	
11,600	58,000	.007800	.000750	.....	.....	
11,800	59,000	.008600	.000800	.....	.....	
12,000	60,000	.009600	.001000	.....	.....	
12,400	62,000	.011300	.001700	.....	.....	
12,800	64,000	.013050	.001750	.....	.....	
13,200	66,000	.014750	.001700	.....	.....	
13,600	68,000	.016750	.002000	.....	.....	
14,000	70,000	.018500	.001750	.....	.....	
14,400	72,000	.020600	.002100	.....	.....	
14,800	74,000	.022750	.002150	.....	.....	
15,200	76,000	.025500	.002750	.....	.....	
15,600	78,000	.028100	.002600	.....	.....	
16,000	80,000	.031550	.003450	.....	.....	
16,400	82,000	.035600	.004050	.....	.....	
16,800	84,000	.038500	.002900	.....	.....	
17,200	86,000	.043100	.004600	.....	.....	
17,600	88,000	.048750	.005650	.....	.....	
18,000	90,000	.0550	.006250	.....	.....	
18,400	92,000	.0650	.0100	.....	.....	
18,800	94,000	.0800	.0150	.....	.....	
19,200	96,000	.1050	.0250	.....	.....	
19,300	96,500	.1400	.0350			Tensile strength.

General summary.

Tensile strength per square inch of original section..... pounds.. 96,500
 Elastic limit per square inch of original section..... do... 53,000
 Elongation per inch after rupture..... inch.. 0.2500
 Elongation per inch under strain at elastic limit..... do... .001850
 Reduction in diameter at point of rupture..... do... .135
 Reduction in area after rupture, per centum of original section..... 46.2
 Position of rupture..... ".95 from neck
 Character of broken surface..... silky
 Elongation of inch sections..... ".33*, ".17

No. 2380.

Marks, $^{32}T_{H_{11}}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000650	.000100	0.	.....	
6,000	30,000	.000850	.000200	0.	.....	
7,000	35,000	.001050	.000200	.....	.....	
8,000	40,000	.001200	.000150	.....	.....	
9,000	45,000	.001350	.000150	.....	.....	
10,000	50,000	.001550	.000200			Elastic limit.
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001800	.000200	.....	.....	
10,600	53,000	.003750	.001950	.....	.....	
10,800	54,000	.005250	.001500	.....	.....	
11,000	55,000	.005750	.000500	.....	.....	
11,200	56,000	.006500	.000750	.....	.....	
11,400	57,000	.007350	.000850	.....	.....	
11,600	58,000	.008150	.000800	.....	.....	
11,800	59,000	.009000	.000850	.....	.....	
12,000	60,000	.009900	.000900			
12,400	62,000	.011550	.001650	.....	.....	
12,800	64,000	.013500	.001950	.....	.....	
13,200	66,000	.015600	.002100	.....	.....	
13,600	68,000	.017000	.001400	.....	.....	
14,000	70,000	.018500	.001500	.....	.....	
14,400	72,000	.021500	.003000	.....	.....	
14,800	74,000	.024000	.002500	.....	.....	
15,200	76,000	.027000	.003000	.....	.....	
15,600	78,000	.029250	.002250	.....	.....	
16,000	80,000	.032100	.002850			
16,400	82,000	.036250	.004150	.....	.....	
16,800	84,000	.040150	.003900	.....	.....	
17,200	86,000	.045000	.004850	.....	.....	
17,600	88,000	.050000	.005000	.....	.....	
18,000	90,000	.0600	.0100	.....	.....	
18,400	92,000	.0650	.0050	.....	.....	
18,800	94,000	.0900	.0250	.....	.....	
19,100	95,500	.1200	.0300	.....	.....	
						Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	95,500
Elastic limit per square inch of original section.....	do...	51,000
Elongation per inch after rupture.....	inch..	0.1900
Elongation per inch under strain at elastic limit.....	do ..	.001600
Reduction in diameter at point of rupture.....	do...	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....		".95 from neck
Character of broken surface.....	granular, 50 per centum; silky, 50 per centum	
Elongation of inch sections.....		".13, ".25*

No. 2381.

Marks, $\frac{32}{T_2} T H_{11}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001200	.000200	.....	.....	
8,000	40,000	.001350	.000150	.....	.....	
9,000	45,000	.001550	.000200	.....	.....	
10,000	50,000	.001750	.000200	.....	.....	
10,200	51,000	.001800	.000050	.....	.....	
10,400	52,000	.001800	0.	.....	.....	Elastic limit.
10,600	53,000	.002550	.000750	.....	.....	
10,800	54,000	.003500	.000950	.....	.....	
11,000	55,000	.004650	.001150	.....	.....	
11,200	56,000	.005550	.000900	.....	.....	
11,400	57,000	.006300	.000750	.....	.....	
11,600	58,000	.006800	.000500	.....	.....	
11,800	59,000	.008050	.001250	.....	.....	
12,000	60,000	.009050	.001000	.....	.....	
12,400	62,000	.010800	.001750	.....	.....	
12,800	64,000	.012050	.001250	.....	.....	
13,200	66,000	.014550	.002500	.....	.....	
13,600	68,000	.016500	.001950	.....	.....	
14,000	70,000	.018200	.001700	.....	.....	
14,400	72,000	.020600	.002400	.....	.....	
14,800	74,000	.023000	.002400	.....	.....	
15,200	76,000	.025750	.002750	.....	.....	
15,600	78,000	.028400	.002650	.....	.....	
16,000	80,000	.031400	.003000	.....	.....	
16,400	82,000	.035000	.003600	.....	.....	
16,800	84,000	.038750	.003750	.....	.....	
17,200	86,000	.043500	.004750	.....	.....	
17,600	88,000	.048500	.005000	.....	.....	
18,000	90,000	.054750	.006250	.....	.....	
18,400	92,000	.0650	.010250	.....	.....	
18,800	94,000	.0800	.0150	.....	.....	
19,200	96,000	.1050	.0250	.....	.....	
19,300	96,500	.1400	.0350	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	96,500
Elastic limit per square inch of original section.....	do...	52,000
Elongation per inch after rupture.....	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do...	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture.....	".80 from neck	
Character of broken surface.....	silky, 60 per centum; granular, 40 per centum	
Elongation of inch sections.....	".13, ".30	

No. 2382.

Marks, $^{32}T_{H_{11}}$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001100	.000150	.....	.....	
8,000	40,000	.001300	.000200	.....	.....	
9,000	45,000	.001500	.000200	.....	.....	
9,600	48,000	.001650	.000150	.....	.....	
9,800	49,000	.001700	.000050	.....	.....	
10,000	50,000	.001800	.000100			Elastic limit.
10,200	51,000	.002750	.000950	.....	.....	
10,400	52,000	.004600	.001850	.....	.....	
10,600	53,000	.005600	.001000	.....	.....	
10,800	54,000	.006100	.000500	.....	.....	
11,000	55,000	.007100	.001000	.....	.....	
11,200	56,000	.008050	.000950	.....	.....	
11,400	57,000	.008900	.000850	.....	.....	
11,600	58,000	.009650	.000750	.....	.....	
11,800	59,000	.010350	.000700	.....	.....	
12,000	60,000	.011250	.000900	.....	.....	
12,400	62,000	.013050	.001800	.....	.....	
12,800	64,000	.015250	.002200	.....	.....	
13,200	66,000	.017000	.001750	.....	.....	
13,600	68,000	.019350	.002350	.....	.....	
14,000	70,000	.022000	.002750	.....	.....	
14,400	72,000	.024250	.002250	.....	.....	
14,800	74,000	.026100	.001850	.....	.....	
15,200	76,000	.028750	.002650	.....	.....	
15,600	78,000	.032050	.003300	.....	.....	
16,000	80,000	.035500	.003450	.....	.....	
16,400	82,000	.040000	.004500	.....	.....	
16,800	84,000	.045000	.005000	.....	.....	
17,200	86,000	.051700	.006700	.....	.....	
17,600	88,000	.0600	.0083	.....	.....	
18,000	90,000	.0700	.0100	.....	.....	
18,400	92,000	.0900	.0200	.....	.....	
18,800	94,000	.1150	.0250	.....	.....	
18,920	94,600	.1550	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	94,600
Elastic limit per square inch of original section.....	do ..	50,000
Elongation per inch after rupture.....	inch..	0.2300
Elongation per inch under strain at elastic limit.....	do ..	.001800
Reduction in diameter at point of rupture.....	do ..	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....	$\frac{3}{8}$ inch from neck; oblique	
Character of broken surface.....	silky	
Elongation of inch sections.....	".30*, ".16	

No. 2386.

Marks, $^{32}T_{H_{12}}$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	.....	.....	
8,000	40,000	.001200	.000150	.....	.....	
9,000	45,000	.001400	.000200	.....	.....	
10,000	50,000	.001650	.000250			Elastic limit.
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.003250	.001550	.....	.....	
10,600	53,000	.005600	.002350	.....	.....	
10,800	54,000	.006000	.000400	.....	.....	
11,000	55,000	.006600	.000600	.....	.....	
11,200	56,000	.007350	.000750	.....	.....	
11,400	57,000	.008250	.000900	.....	.....	
11,600	58,000	.008900	.000650	.....	.....	
11,800	59,000	.009700	.000800	.....	.....	
12,000	60,000	.010600	.000900	.....	.....	
12,400	62,000	.012100	.001500	.....	.....	
12,800	64,000	.014050	.001950	.....	.....	
13,200	66,000	.015750	.001700	.....	.....	
13,600	68,000	.017500	.001750	.....	.....	
14,000	70,000	.020000	.002500	.....	.....	
14,400	72,000	.022000	.002000	.....	.....	
14,800	74,000	.024500	.002500	.....	.....	
15,200	76,000	.026600	.002100	.....	.....	
15,600	78,000	.030150	.003550	.....	.....	
16,000	80,000	.032900	.002750	.....	.....	
16,400	82,000	.036000	.003100	.....	.....	
16,800	84,000	.041000	.005000	.....	.....	
17,200	86,000	.046500	.005500	.....	.....	
17,600	88,000	.0500	.0035	.....	.....	
18,000	90,000	.0550	.0050	.....	.....	
18,400	92,000	.0650	.0100	.....	.....	
18,800	94,000	.0850	.0200	.....	.....	
19,160	95,800	.1350	.0500			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	95,800
Elastic limit per square inch of original section	do...	51,000
Elongation per inch after rupture	inch..	0.2150
Elongation per inch under strain at elastic limit	do...	.001700
Reduction in diameter at point of rupture	do...	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	" .65 from neck	
Character of broken surface	silky	
Elongation of inch sections	".32*, ".11	

No. 2387.

Marks, $^{32}T_{H_{12}}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000900	.000250	0.	.....	
7,000	35,000	.001050	.000150	.....	.....	
8,000	40,000	.001300	.000250	.....	.....	
9,000	45,000	.001450	.000150	.....	.....	
10,000	50,000	.001600	.000150			Elastic limit.
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001800	.000150	.....	.....	
10,600	53,000	.002500	.000700	.....	.....	
10,800	54,000	.004250	.001750	.....	.....	
11,000	55,000	.004900	.000650	.....	.....	
11,200	56,000	.006000	.001100	.....	.....	
11,400	57,000	.007500	.001500	.....	.....	
11,600	58,000	.008250	.000750	.....	.....	
11,800	59,000	.009000	.000750	.....	.....	
12,000	60,000	.010400	.001400	.....	.....	
12,400	62,000	.011850	.001450	.....	.....	
12,800	64,000	.013000	.001150	.....	.....	
13,200	66,000	.014750	.001750	.....	.....	
13,600	68,000	.016750	.002000	.....	.....	
14,000	70,000	.018750	.002000	.....	.....	
14,400	72,000	.021050	.002300	.....	.....	
14,800	74,000	.022750	.001700	.....	.....	
15,200	76,000	.025250	.002500	.....	.....	
15,600	78,000	.028000	.002750	.....	.....	
16,000	80,000	.030600	.002600	.....	.....	
16,400	82,000	.033500	.002900	.....	.....	
16,800	84,000	.037500	.004000	.....	.....	
17,200	86,000	.041500	.004000	.....	.....	
17,600	88,000	.046750	.005250	.....	.....	
18,000	90,000	.052500	.005750	.....	.....	
18,400	92,000	.0600	.0075	.....	.....	
18,800	94,000	.0650	.0050	.....	.....	
19,200	96,000	.0900	.0250	.....	.....	
19,550	97,750	.1400	.0500			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	97,750
Elastic limit per square inch of original section.....	do...	51,000
Elongation per inch after rupture.....	inch..	0.2200
Elongation per inch under strain at elastic limit.....	do...	.001650
Reduction in diameter at point of rupture.....	do...	.115
Reduction in area after rupture, per centum of original section.....	..	40.3
Position of rupture.....	".70 from neck	
Character of broken surface.....	silky, 50 per centum; granular, 50 per centum	
Elongation of inch sections.....	".30*, ".14	

No. 2388.

Marks, $^{32}T_{H_{12}}$
 T_3 Diameter, $\frac{11}{16}$.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000700	.000150	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001200	.000200	.....	.....	
8,000	40,000	.001450	.000250	.....	.....	
9,000	45,000	.001650	.000200	.....	.....	
9,200	46,000	.001700	.000050			Elastic limit.
9,400	47,000	.001750	.000050	.....	.....	
9,600	48,000	.001800	.000050	.....	.....	
9,800	49,000	.001850	.000050	.....	.....	
10,000	50,000	.002150	.000300	.....	.....	
10,200	51,000	.003450	.001300	.....	.....	
10,400	52,000	.005250	.001800	.....	.....	
10,600	53,000	.006500	.001250	.....	.....	
10,800	54,000	.007250	.000750	.....	.....	
11,000	55,000	.007950	.000700	.....	.....	
11,200	56,000	.008550	.000600			Tensile strength.
11,400	57,000	.009300	.000750	.....	.....	
11,600	58,000	.010000	.000700	.....	.....	
11,800	59,000	.011000	.001000	.....	.....	
12,000	60,000	.011750	.000750	.....	.....	
12,400	62,000	.013750	.002000	.....	.....	
12,800	64,000	.015600	.001850	.....	.....	
13,200	66,000	.017550	.001950	.....	.....	
13,600	68,000	.020000	.002450	.....	.....	
14,000	70,000	.021650	.001650	.....	.....	
14,400	72,000	.024250	.002600			Tensile strength.
14,800	74,000	.026500	.002250	.....	.....	
15,200	76,000	.029100	.002600	.....	.....	
15,600	78,000	.032150	.003050	.....	.....	
16,000	80,000	.038100	.005950	.....	.....	
16,400	82,000	.039750	.001650	.....	.....	
16,800	84,000	.044250	.004500	.....	.....	
17,200	86,000	.050000	.005750	.....	.....	
17,600	88,000	.0550	.0050	.....	.....	
18,000	90,000	.0600	.0050	.....	.....	
18,400	92,000	.0800	.0200			Tensile strength.
18,800	94,000	.1050	.0250	.....	.....	
18,920	94,600	.1400	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	94,600
Elastic limit per square inch of original section.....	do...	49,000
Elongation per inch after rupture.....	inch..	0.1900
Elongation per inch under strain at elastic limit.....	do...	.001850
Reduction in diameter at point of rupture.....	do...	.095
Reduction in area after rupture, per centum of original section.....		34.0
Position of rupture.....	1 inch from neck	
Character of broken surface.....	granular, 60 per centum; silky, 40 per centum	
Elongation of inch sections.....	" .24*, ".14	

No. 2288.

Marks, $^{32}T_{H_{13}}$ Diameter, $\frac{1}{2}$.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001350	.000150	0.	.....	
10,000	50,000	.001550	.000200	0.		Elastic limit.
10,200	51,000	.001650	.000100	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001850	.000150	.....	.....	
10,800	54,000	.003750	.001900	.....	.....	
11,000	55,000	.004750	.001000	.....	.....	
11,200	56,000	.005500	.000750	.....	.....	
11,400	57,000	.006350	.000850	.....	.....	
11,600	58,000	.007250	.000900	.....	.....	
11,800	59,000	.007900	.000650	.....	.....	
12,000	60,000	.008900	.001000	.....	.....	
12,400	62,000	.010600	.001700	.....	.....	
12,800	64,000	.012250	.001650	.....	.....	
13,200	66,000	.014000	.001750	.....	.....	
13,600	68,000	.015600	.001600	.....	.....	
14,000	70,000	.017400	.001800	.....	.....	
14,400	72,000	.019500	.002100	.....	.....	
14,800	74,000	.021750	.002250	.....	.....	
15,200	76,000	.024000	.002250	.....	.....	
15,600	78,000	.026750	.002750	.....	.....	
16,000	80,000	.029750	.003000	.....	.....	
16,400	82,000	.032250	.002500	.....	.....	
16,800	84,000	.036000	.003750	.....	.....	
17,200	86,000	.038750	.002750	.....	.....	
17,600	88,000	.044000	.005250	.....	.....	
18,000	90,000	.049000	.005000	.....	.....	
18,400	92,000	.055750	.006750	.....	.....	
18,800	94,000	.0650	.009250	.....	.....	
19,200	96,000	.0800	.0150	.....	.....	
19,600	98,000	.1050	.0250	.....	.....	
19,720	98,600	.1400	.0350			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	98,600
Elastic limit per square inch of original section	do...	52,000
Elongation per inch after rupture	inch..	0.1400
Elongation per inch under strain at elastic limit	do ..	.001700
Reduction in diameter at point of rupture	do...	.035
Reduction in area after rupture, per centum of original section		13.2
Position of rupture		.92 from neck
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections		.16, .12

No. 2289.

Marks, $^{32}T H_{13}$ Diameter, $'' .505$.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001500	.000150	0.	.....	
9,200	46,000	.001550	.000050			Elastic limit.
9,400	47,000	.001600	.000050	.....	.....	
9,600	48,000	.001600	0.	.....	.....	
9,800	49,000	.001650	.000050	.....	.....	
10,000	50,000	.001850	.000200	.....	.....	
10,200	51,000	.003900	.002050	.....	.....	
10,400	52,000	.004650	.000750	.....	.....	
10,600	53,000	.005250	.000600	.....	.....	
10,800	54,000	.006300	.001050	.....	.....	
11,000	55,000	.006900	.000600	.....	.....	
11,200	56,000	.007850	.000950			Tensile strength.
11,400	57,000	.008600	.000750	.....	.....	
11,600	58,000	.009400	.000800	.....	.....	
11,800	59,000	.010250	.000850	.....	.....	
12,000	60,000	.011250	.001000	.....	.....	
12,400	62,000	.012550	.001300	.....	.....	
12,800	64,000	.014600	.002050	.....	.....	
13,200	66,000	.016500	.001900	.....	.....	
13,600	68,000	.018500	.002000	.....	.....	
14,000	70,000	.020500	.002000	.....	.....	
14,400	72,000	.022800	.002300			Tensile strength.
14,800	74,000	.026000	.003200	.....	.....	
15,200	76,000	.029000	.003000	.....	.....	
15,600	78,000	.031750	.002750	.....	.....	
16,000	80,000	.035000	.003250	.....	.....	
16,400	82,000	.039000	.004000	.....	.....	
16,800	84,000	.043750	.004750	.....	.....	
17,200	86,000	.048000	.004250	.....	.....	
17,600	88,000	.055000	.007000	.....	.....	
18,000	90,000	.0700	.0150	.....	.....	
18,400	92,000	.0900	.0200	.....	.....	
18,800	94,000	.1050	.0150	.....	.....	
18,950	94,750	.1450	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	94,750
Elastic limit per square inch of original section	do...	49,000
Elongation per inch after rupture	inch..	0.2050
Elongation per inch under strain at elastic limit	do...	.001650
Reduction in diameter at point of rupture	do...	.085
Reduction in area after rupture, per centum of original section		30.7
Position of rupture		".05 from middle of stem
Character of broken surface		granular; dull spot at circumference; opened cracks in surface of stem
Elongation of inch sections		".25*, ".16

No. 2290.

Marks, $^{32}T H_{13}$ Diameter, T_3 .505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000900	.000100	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001250	.000200	0.	.....	
9,000	45,000	.001400	.000150	0.	.....	
10,000	50,000	.001650	.000250	0.		Elastic limit.
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.002650	.000900	.....	.....	
10,800	54,000	.004300	.001650	.....	.....	
11,000	55,000	.005100	.000800	.....	.....	
11,200	56,000	.006100	.001000	.....	.....	
11,400	57,000	.006900	.000800	.....	.....	
11,600	58,000	.008000	.001100	.....	.....	
11,800	59,000	.008900	.000900	.....	.....	
12,000	60,000	.009500	.000600			Tensile strength.
12,400	62,000	.010750	.001250	.....	.....	
12,800	64,000	.012250	.001500	.....	.....	
13,200	66,000	.014000	.001750	.....	.....	
13,600	68,000	.015850	.001850	.....	.....	
14,000	70,000	.018200	.002350	.....	.....	
14,400	72,000	.020000	.001800	.....	.....	
14,800	74,000	.022000	.002000	.....	.....	
15,200	76,000	.024000	.002000	.....	.....	
15,600	78,000	.027000	.003000	.....	.....	
16,000	80,000	.029750	.002750			Tensile strength.
16,400	82,000	.032750	.003000	.....	.....	
16,800	84,000	.036000	.003250	.....	.....	
17,200	86,000	.040000	.004000	.....	.....	
17,600	88,000	.044750	.004750	.....	.....	
18,000	90,000	.050250	.005500	.....	.....	
18,400	92,000	.0600	.001750	.....	.....	
18,800	94,000	.0650	.0050	.....	.....	
19,200	96,000	.0850	.0200	.....	.....	
19,600	98,000	.1100	.0250	.....	.....	
19,620	98,100	.1400	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	98,100
Elastic limit per square inch of original section.....	do...	52,000
Elongation per inch after rupture.....	inch..	0.2250
Elongation per inch under strain at elastic limit.....	do...	.001750
Reduction in diameter at point of rupture.....	do...	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....		".80 from neck
Character of broken surface.....	granular, 60 per centum; dull silky, 40 per centum	
Elongation of inch sections.....		".30*, ".15

No. 2291.

Marks, $^{32}T_{H_{14}}$
 Diameter, $\frac{1}{2}$ inch.
 Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000300	.000200	0.	-----	
3,000	15,000	.000500	.000200	0.	-----	
4,000	20,000	.000600	.000100	0.	-----	
5,000	25,000	.000800	.000200	0.	-----	
6,000	30,000	.000950	.000150	0.	-----	
7,000	35,000	.001150	.000200	0.	-----	
8,000	40,000	.001300	.000150	0.	-----	
9,000	45,000	.001450	.000150	0.	-----	
10,000	50,000	.001700	.000250	0.	-----	Elastic limit.
10,200	51,000	.001950	.000250	-----	-----	
10,400	52,000	.002400	.000450	-----	-----	
10,600	53,000	.003500	.001100	-----	-----	
10,800	54,000	.004250	.000750	-----	-----	
11,000	55,000	.005000	.000750	-----	-----	
11,200	56,000	.006000	.001000	-----	-----	
11,400	57,000	.006900	.000900	-----	-----	
11,600	58,000	.007750	.000850	-----	-----	
11,800	59,000	.008400	.000650	-----	-----	
12,000	60,000	.009000	.000600	-----	-----	
12,400	62,000	.010700	.001700	-----	-----	
12,800	64,000	.012250	.001550	-----	-----	
13,200	66,000	.014050	.001800	-----	-----	
13,600	68,000	.016000	.001950	-----	-----	
14,000	70,000	.017750	.001750	-----	-----	
14,400	72,000	.019600	.001850	-----	-----	
14,800	74,000	.022250	.002650	-----	-----	
15,200	76,000	.024500	.002250	-----	-----	
15,600	78,000	.027000	.002500	-----	-----	
16,000	80,000	.029750	.002750	-----	-----	
16,400	82,000	.032350	.002600	-----	-----	
16,800	84,000	.035750	.003400	-----	-----	
17,200	86,000	.039250	.003500	-----	-----	
17,600	88,000	.044000	.004750	-----	-----	
18,000	90,000	.049500	.005500	-----	-----	
18,400	92,000	.056000	.006500	-----	-----	
18,800	94,000	.0700	.0140	-----	-----	
19,200	96,000	.0850	.0150	-----	-----	
19,600	98,000	.1150	.0300	-----	-----	
19,610	98,050	.1300	.0150	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section pounds.. 98,050
 Elastic limit per square inch of original section.....do... 50,000
 Elongation per inch after rupture.....inch.. 0.1900
 Elongation per inch under strain at elastic limitdo... .001700
 Reduction in diameter at point of rupture.....do... .105
 Reduction in area after rupture, per centum of original section 37.1
 Position of rupture..... $\frac{3}{4}$ inch from neck
 Character of broken surface.....granular, 60 per centum; dull, silky center, 40 per centum
 Elongation of inch sections".26", ".12

No. 2292.

Marks, $^{32}T H_{14}$
 T_2

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001050	.000200	0.	.....	
7,000	35,000	.001200	.000150	0.	.....	
8,000	40,000	.001450	.000250	.000050	.000050	
9,000	45,000	.001650	.000200	.000050	0.	Elastic limit.
10,000	50,000	.001800	.000150	.000050	0.	
10,200	51,000	.001850	.000050	.....	.....	
10,400	52,000	.002050	.000200	.....	.....	
10,600	53,000	.002750	.000700	.....	.....	
10,800	54,000	.003750	.001000	.....	.....	
11,000	55,000	.004350	.000600	.....	.....	
11,200	56,000	.005250	.000900	.....	.....	
11,400	57,000	.006200	.000950	.....	.....	
11,600	58,000	.006850	.000650	.....	.....	
11,800	59,000	.007500	.000650			
12,000	60,000	.008500	.001000	.....	.....	
12,400	62,000	.010000	.001500	.....	.....	
12,800	64,000	.011850	.001850	.....	.....	
13,200	66,000	.013000	.001150	.....	.....	
13,600	68,000	.015000	.002000	.....	.....	
14,000	70,000	.016700	.001700	.....	.....	
14,400	72,000	.018400	.001700	.....	.....	
14,800	74,000	.020300	.001900	.....	.....	
15,200	76,000	.022100	.001800			
15,600	78,000	.024600	.002500	.....	.....	
16,000	80,000	.027050	.002450	.....	.....	
16,400	82,000	.029500	.002450	.....	.....	
16,800	84,000	.032500	.003000	.....	.....	
17,200	86,000	.036250	.003750	.....	.....	
17,600	88,000	.040000	.003750	.....	.....	
18,000	90,000	.044000	.004000	.....	.....	
18,400	92,000	.049750	.005750	.....	.....	
18,800	94,000	.056000	.006250			Tensile strength.
19,200	96,000	.0700	.0140	.....	.....	
19,600	98,000	.0900	.0200	.....	.....	
20,000	100,000	.1100	.0200	.....	.....	
20,020	100,100	.1300	.0200			

General summary.

Tensile strength per square inch of original section	pounds..	100,100
Elastic limit per square inch of original section	do ..	51,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit	do...	.001850
Reduction in diameter at point of rupture	do...	.085
Reduction in area after rupture, per centum of original section		30.7
Position of rupture	1".05 from neck	
Character of broken surface	granular; small dull spot at circumference	
Elongation of inch sections	".23*, ".17	

No. 2293.

Marks, $^{32}T_{H_{14}}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001150	.000200	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001500	.000200	0.	.....	
10,000	50,000	.001750	.000250	.000050	.000050	Elastic limit.
10,200	51,000	.001800	.000050	.....	.....	
10,400	52,000	.002250	.000450	.....	.....	
10,800	54,000	.004000	.001750	.....	.....	
11,000	55,000	.004450	.000450	.....	.....	
11,200	56,000	.005250	.000800	.....	.....	
11,400	57,000	.006150	.000900	.....	.....	
11,600	58,000	.007050	.000900	.....	.....	
11,800	59,000	.007650	.000600	.....	.....	
12,000	60,000	.008350	.000750	.....	.....	
12,400	62,000	.010050	.001700			Tensile strength.
12,800	64,000	.011500	.001450	.....	.....	
13,200	66,000	.013250	.001750	.....	.....	
13,600	68,000	.015250	.002000	.....	.....	
14,000	70,000	.016750	.001500	.....	.....	
14,400	72,000	.018750	.002000	.....	.....	
14,800	74,000	.020750	.002000	.....	.....	
15,200	76,000	.022550	.001800	.....	.....	
15,600	78,000	.025100	.002550	.....	.....	
16,000	80,000	.028400	.003300	.....	.....	
16,400	82,000	.030350	.001950			Tensile strength.
16,800	84,000	.034250	.003900	.....	.....	
17,200	86,000	.037700	.003450	.....	.....	
17,600	88,000	.042100	.004400	.....	.....	
18,000	90,000	.047550	.005450	.....	.....	
18,400	92,000	.054000	.006450	.....	.....	
18,800	94,000	.0600	.0060	.....	.....	
19,200	96,000	.0700	.0100	.....	.....	
19,600	98,000	.1050	.0350	.....	.....	
19,680	98,400	.1250	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	98,400
Elastic limit per square inch of original section.....	do...	51,000
Elongation per inch after rupture.....	inch..	0.1550
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do...	.075
Reduction in area after rupture, per centum of original section.....		27.4
Position of rupture.....	".70 from neck	
Character of broken surface.....	granular	
Elongation of inch sections.....	".21*, ".10	

No. 2383.

Marks, ³² T_{H15}
T₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001150	.000150	.....	.....	
8,000	40,000	.001300	.000150	.....	.....	
9,000	45,000	.001450	.000150	.....	.....	
10,000	50,000	.001600	.000150			Elastic limit.
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001900	.000250	.....	.....	
10,600	53,000	.003850	.001950	.....	.....	
10,800	54,000	.005000	.001150	.....	.....	
11,000	55,000	.005750	.000750	.....	.....	
11,200	56,000	.006550	.000800	.....	.....	
11,400	57,000	.007400	.000850	.....	.....	
11,600	58,000	.008200	.000800	.....	.....	
11,800	59,000	.009000	.000800	.....	.....	
12,000	60,000	.009750	.000750	.....	.....	
12,400	62,000	.011550	.001800	.....	.....	
12,800	64,000	.013400	.001850	.....	.....	
13,200	66,000	.014900	.001500	.....	.....	
13,600	68,000	.016750	.001850	.....	.....	
14,000	70,000	.018550	.001800	.....	.....	
14,400	72,000	.021000	.002450	.....	.....	
14,800	74,000	.023250	.002250	.....	.....	
15,200	76,000	.025750	.002500	.....	.....	
15,600	78,000	.028250	.002500	.....	.....	
16,000	80,000	.031250	.003000	.....	.....	
16,400	82,000	.034500	.003250	.....	.....	
16,800	84,000	.038250	.003750	.....	.....	
17,200	86,000	.042500	.004250	.....	.....	
17,600	88,000	.048500	.006000	.....	.....	
18,000	90,000	.054000	.005500	.....	.....	
18,400	92,000	.0650	.0110	.....	.....	
18,800	94,000	.0800	.0150	.....	.....	
19,200	96,000	.1050	.0250	.....	.....	
19,250	96,250	.1300	.0250			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	96,250
Elastic limit per square inch of original section	do..	51,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit	do..	.001650
Reduction in diameter at point of rupture	do..	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture	1".10 from neck	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	".25", ".15	

No. 2384.

Marks, ³² T H₁₅
T₂

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001150	.000200	.....	.....	
8,000	40,000	.001300	.000150	.....	.....	
9,000	45,000	.001500	.000200	.....	.....	
10,000	50,000	.001750	.000150			Elastic limit.
10,200	51,000	.004000	.002250	.....	.....	
10,400	52,000	.005000	.001000	.....	.....	
10,600	53,000	.005900	.000900	.....	.....	
10,800	54,000	.006650	.000750	.....	.....	
11,000	55,000	.007250	.000600	.....	.....	
11,200	56,000	.008100	.000850	.....	.....	
11,400	57,000	.008750	.000650	.....	.....	
11,600	58,000	.009750	.001000	.....	.....	
11,800	59,000	.010700	.000950	.....	.....	
12,000	60,000	.011250	.000550			Tensile strength.
12,400	62,000	.013000	.001750	.....	.....	
12,800	64,000	.014700	.001700	.....	.....	
13,200	66,000	.016250	.001550	.....	.....	
13,600	68,000	.018600	.002350	.....	.....	
14,000	70,000	.021000	.002400	.....	.....	
14,400	72,000	.022650	.001650	.....	.....	
14,800	74,000	.025000	.002350	.....	.....	
15,200	76,000	.027750	.002750	.....	.....	
15,600	78,000	.030300	.002650	.....	.....	
16,000	80,000	.034050	.003750	.....	.....	
16,400	82,000	.037800	.003750	.....	.....	
16,800	84,000	.042250	.004450	.....	.....	
17,200	86,000	.046750	.004500	.....	.....	
17,600	88,000	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section pounds.. 88,000
 Elastic limit per square inch of original section do... 50,000
 Elongation per inch after rupture inch.. 0.0550
 Elongation per inch under strain at elastic limit do... .001750
 Reduction in diameter at point of rupture do... .015
 Reduction in area after rupture, per centum of original section 5.7
 Position of rupture $\frac{1}{2}$ inch from neck
 Character of broken surface granular
 Elongation of inch sections ".07*, ".04

No. 2385.

Marks, $^{32}T H_{15}$
 T_3 Diameter, $''$.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001200	.000200	.....	.....	
8,000	40,000	.001350	.000150	.....	.....	
9,000	45,000	.001550	.000200	.....	.....	
9,600	48,000	.001700	.000150			Elastic limit.
9,800	49,000	.001750	.000050	.....	.....	
10,000	50,000	.002500	.000750	.....	.....	
10,200	51,000	.004500	.002000	.....	.....	
10,400	52,000	.005500	.001000	.....	.....	
10,600	53,000	.006100	.000600	.....	.....	
10,800	54,000	.006600	.000500	.....	.....	
11,000	55,000	.007300	.000700	.....	.....	
11,200	56,000	.008100	.000800	.....	.....	
11,400	57,000	.009000	.000900	.....	.....	
11,600	58,000	.010000	.001000	.....	.....	
11,800	59,000	.010700	.000700	.....	.....	
12,000	60,000	.011600	.000900	.....	.....	
12,400	62,000	.013250	.001650	.....	.....	
12,800	64,000	.015000	.001750	.....	.....	
13,200	66,000	.016750	.001750	.....	.....	
13,600	68,000	.019000	.002250	.....	.....	
14,000	70,000	.021000	.002000	.....	.....	
14,400	72,000	.023100	.002100	.....	.....	
14,800	74,000	.025750	.002650	.....	.....	
15,200	76,000	.028250	.002500	.....	.....	
15,600	78,000	.031750	.003500	.....	.....	
16,000	80,000	.035250	.003500	.....	.....	
16,400	82,000	.039250	.004000	.....	.....	
16,800	84,000	.043250	.004000	.....	.....	
17,200	86,000	.048000	.004750	.....	.....	
17,600	88,000	.0550	.0070	.....	.....	
18,000	90,000	.0650	.0100	.....	.....	
18,400	92,000	.0800	.0150	.....	.....	
18,800	94,000	.1000	.0200			Tensile strength.
18,980	94,900	.1400	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	94,900
Elastic limit per square inch of original section	do...	49,000
Elongation per inch after rupture	inch..	0.2150
Elongation per inch under strain at elastic limit	do...	.001750
Reduction in diameter at point of rupture	do...	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture	1 inch from neck	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	"24", ".19	

[Additional specimens.]

No. 2444.

Marks, $^{32}T_{H_{15}}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001250	.000200	0.	.....	
9,000	45,000	.001450	.000200	0.	.....	
10,000	50,000	.001650	.000200	0.		Elastic limit.
10,200	51,000	.001650	0.	.....	.....	
10,400	52,000	.001750	.000100	.....	.....	
10,600	53,000	.001800	.000050	.....	.....	
10,800	54,000	.001900	.000100	.....	.....	
11,000	55,000	.001950	.000050	.....	.....	
11,200	56,000	.002100	.000150	.....	.....	
11,400	57,000	.005600	.003500	.....	.....	
11,600	58,000	.006500	.000900	.....	.....	
11,800	59,000	.007900	.001400	.....	.....	
12,000	60,000	.008800	.000900			Tensile strength.
12,400	62,000	.009900	.001100	.....	.....	
12,800	64,000	.011900	.002000	.....	.....	
13,200	66,000	.013750	.001850	.....	.....	
13,600	68,000	.015750	.002000	.....	.....	
14,000	70,000	.017650	.001900	.....	.....	
14,400	72,000	.020100	.002450	.....	.....	
14,800	74,000	.022550	.002450	.....	.....	
15,200	76,000	.025000	.002450	.....	.....	
15,600	78,000	.027500	.002500	.....	.....	
16,000	80,000	.031250	.003750			
16,400	82,000	.034750	.003500	.....	.....	
16,800	84,000	.038750	.004000	.....	.....	
17,200	86,000	.043550	.004800	.....	.....	
17,600	88,000	.050000	.006440	.....	.....	
18,000	90,000	.0550	.0050	.....	.....	
18,400	92,000	.0650	.0100	.....	.....	
18,800	94,000	.0900	.0250	.....	.....	
19,160	95,800	.1500	.0600	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	95,800
Elastic limit per square inch of original section.....	do...	55,000
Elongation per inch after rupture.....	inch..	0.2600
Elongation per inch under strain at elastic limit.....	do...	.001950
Reduction in diameter at point of rupture.....	do...	.165
Reduction in area after rupture, per centum of original section.....		54.6
Position of rupture.....	1".05 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".17, ".35*	

No. 2445.

Marks, $^{32}T_{H_{15}}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000600	.000100	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001450	.000200	.....	.....	
10,000	50,000	.001600	.000150			Elastic limit.
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001650	0.	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.001750	.000050	.....	.....	
11,000	55,000	.003550	.001800	.....	.....	
11,200	56,000	.005100	.001550	.....	.....	
11,400	57,000	.006300	.001200	.....	.....	
11,600	58,000	.007250	.000950	.....	.....	
11,800	59,000	.008000	.000750	.....	.....	
12,000	60,000	.009000	.001000	.....	.....	
12,400	62,000	.010800	.001800	.....	.....	
12,800	64,000	.012200	.001400	.....	.....	
13,200	66,000	.014250	.002050	.....	.....	
13,600	68,000	.016750	.002500	.....	.....	
14,000	70,000	.019250	.002500	.....	.....	
14,400	72,000	.021000	.001750	.....	.....	
14,800	74,000	.023000	.002000	.....	.....	
15,200	76,000	.026100	.003100	.....	.....	
15,600	78,000	.029150	.003050	.....	.....	
16,000	80,000	.032600	.003450	.....	.....	
16,400	82,000	.036500	.003900	.....	.....	
16,800	84,000	.040000	.003500	.....	.....	
17,200	86,000	.045000	.005000	.....	.....	
17,600	88,000	.052000	.007000	.....	.....	
18,000	90,000	.0600	.0080	.....	.....	
18,400	92,200	.0700	.0100	.....	.....	
18,800	94,000	.0950	.0250	.....	.....	
19,010	95,050	.1350	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	95,050
Elastic limit per square inch of original section.....	do.....	54,000
Elongation per inch after rupture.....	inch..	0.2500
Elongation per inch under strain at elastic limit.....	do.....	.001750
Reduction in diameter at point of rupture.....	do.....	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....	at middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".17, ".33*	

No. 2446.

Marks, ^{32 T H₁₅}
_{T₆}

Diameter, ".506.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000800	.000100	0.	.....	
7,000	35,000	.000950	.000150	0.	.....	
8,000	40,000	.001200	.000250	0.	.....	
9,000	45,000	.001350	.000150	0.	.....	
10,000	50,000	.001550	.000200	0.	.....	
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001600	0.	.....	.....	
10,600	53,000	.001650	.000050			Elastic limit.
10,800	54,000	.001700	.000050	.....	.....	
11,000	55,000	.003750	.002050	.....	.....	
11,200	56,000	.004900	.001150	.....	.....	
11,400	57,000	.005900	.001000	.....	.....	
11,600	58,000	.006500	.000600	.....	.....	
11,800	59,000	.007750	.001250	.....	.....	
12,000	60,000	.008800	.001050	.....	.....	
12,400	62,000	.010250	.001450	.....	.....	
12,800	64,000	.011750	.001500	.....	.....	
13,200	66,000	.013750	.002000	.....	.....	
13,600	68,000	.016150	.002400	.....	.....	
14,000	70,000	.018400	.002250	.....	.....	
14,400	72,000	.021000	.002650	.....	.....	
14,800	74,000	.023500	.002500	.....	.....	
15,200	76,000	.026100	.002600	.....	.....	
15,600	78,000	.028750	.002650	.....	.....	
16,000	80,000	.031250	.002500	.....	.....	
16,400	82,000	.034750	.003500	.....	.....	
16,800	84,000	.038700	.003950	.....	.....	
17,200	86,000	.043500	.004800	.....	.....	
17,600	88,000	.050000	.006500	.....	.....	
18,000	90,000	.0550	.0050	.....	.....	
18,400	92,000	.0650	.0100	.....	.....	
18,800	94,000	.0850	.0200	.....	.....	
19,120	95,600	.1450	.0600			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	95,600
Elastic limit per square inch of original section	do..	54,000
Elongation per inch after rupture	inch..	0.2500
Elongation per inch under strain at elastic limit	do..	.001700
Reduction in diameter at point of rupture	do..	.156
Reduction in area after rupture, per centum of original section		51.9
Position of rupture	".80 from neck	
Character of broken surface	silky	
Elongation of inch sections	".35*, ".15	

No. 2457.

Marks, $^{32}T_{H_{16}}$
 T_1

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000030	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001200	.000200	.....	.....	
8,000	40,000	.001350	.000150	.....	.....	
9,000	45,000	.001500	.000150	.....	.....	
10,000	50,000	.001700	.000200			Elastic limit.
10,200	51,000	.003500	.001800	.....	.....	
10,400	52,000	.004750	.001250	.....	.....	
10,600	53,000	.005600	.000950	.....	.....	
10,800	54,000	.006100	.000500	.....	.....	
11,000	55,000	.006800	.000700	.....	.....	
11,200	56,000	.007650	.000850	.....	.....	
11,400	57,000	.008500	.000850	.....	.....	
11,600	58,000	.009200	.000700	.....	.....	
11,800	59,000	.010000	.000800	.....	.....	
12,000	60,000	.010700	.000700	.....	.....	
12,400	62,000	.012550	.001850	.....	.....	
12,800	64,000	.014000	.001450	.....	.....	
13,200	66,000	.016000	.002000	.....	.....	
13,600	68,000	.018000	.002000	.....	.....	
14,000	70,000	.020000	.002000	.....	.....	
14,400	72,000	.022250	.002250	.....	.....	
14,800	74,000	.024250	.002000	.....	.....	
15,200	76,000	.026550	.002300	.....	.....	
15,600	78,000	.029500	.002950	.....	.....	
16,000	80,000	.032250	.002750	.....	.....	
16,400	82,000	.036000	.003750	.....	.....	
16,800	84,000	.039500	.003500	.....	.....	
17,200	86,000	.044000	.004500	.....	.....	
17,600	88,000	.049600	.005600	.....	.....	
18,000	90,000	.0550	.0054	.....	.....	
18,400	92,000	.0600	.0050	.....	.....	
18,800	94,000	.0800	.0200	.....	.....	
19,200	96,000	.1000	.0200	.....	.....	
19,300	96,500	.1350	.0350			Tensile strength.

General summary.

Tensile strength per square inch of original section.....pounds.. 96,500
 Elastic limit per square inch of original section.....do.. 50,000
 Elongation per inch after rupture.....inch.. 0.1450
 Elongation per inch under strain at elastic limit.....do.. .001700
 Reduction in diameter at point of rupture.....do.. .045
 Reduction in area after rupture, per centum of original section.....16.9
 Position of rupture.....1 inch from neck
 Character of broken surface.....granular; radiating from a dull spot at the circumference
 Elongation of inch sections.....".19", ".10

No. 2458.

Marks, $^{32}T_{H_{16}}$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001100	.000150	.....	.....	
8,000	40,000	.001300	.000200	.....	.....	
9,000	45,000	.001500	.000200	.....	.....	
9,600	48,000	.001600	.000100			Elastic limit.
9,800	49,000	.001650	.000050	.....	.....	
10,000	50,000	.001700	.000050	.....	.....	
10,200	51,000	.001700	0.	.....	.....	
10,400	52,000	.001850	.000150	.....	.....	
10,600	53,000	.003700	.001850	.....	.....	
10,800	54,000	.004500	.000800	.....	.....	
11,000	55,000	.005750	.001250	.....	.....	
11,200	56,000	.006200	.000450	.....	.....	
11,400	57,000	.007050	.000850	.....	.....	
11,600	58,000	.007750	.000700			
11,800	59,000	.008500	.000750	.....	.....	
12,000	60,000	.009150	.000650	.....	.....	
12,400	62,000	.011000	.001850	.....	.....	
12,800	64,000	.012550	.001550	.....	.....	
13,200	66,000	.014000	.001450	.....	.....	
13,600	68,000	.015600	.001600	.....	.....	
14,000	70,000	.017500	.001900	.....	.....	
14,400	72,000	.019500	.002000	.....	.....	
14,800	74,000	.021500	.002000	.....	.....	
15,200	76,000	.023500	.002000			Tensile strength.
15,600	78,000	.026250	.002750	.....	.....	
16,000	80,000	.029000	.002750	.....	.....	
16,400	82,000	.032000	.003000	.....	.....	
16,800	84,000	.035250	.003250	.....	.....	
17,200	86,000	.038500	.003250	.....	.....	
17,600	88,000	.044250	.005750	.....	.....	
18,000	90,000	.049000	.004750	.....	.....	
18,400	92,000	.055000	.006000	.....	.....	
18,800	94,000	.0600	.0050	.....	.....	
19,200	96,000	.0750	.0150			
19,600	98,000	.1000	.0250	.....	.....	
19,660	98,300	.1200	.0200			

General summary.

Tensile strength per square inch of original section.....	pounds..	98,300
Elastic limit per square inch of original section.....	do..	52,000
Elongation per inch after rupture.....	inch..	0.1650
Elongation per inch under strain at elastic limit.....	do..	.001850
Reduction in diameter at point of rupture.....	do..	.075
Reduction in area after rupture, per centum of original section.....		27.4
Position of rupture.....		".45 from neck
Character of broken surface.....		granular; small dull spot at the circumference
Elongation of inch sections.....		".22*, ".11

No. 2459.

Marks, ^{32 T H₁₆}
Diameter, ^{T₃} .505.
Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001200	.000200	.....	.....	
8,000	40,000	.001350	.000150	.....	.....	
9,000	45,000	.001550	.000200			Elastic limit.
10,000	50,000	.001750	.000200	.....	.....	
10,200	51,000	.001950	.000200	.....	.....	
10,400	52,000	.002550	.000600	.....	.....	
10,600	53,000	.003550	.000100	.....	.....	
10,800	54,000	.004800	.001250	.....	.....	
11,000	55,000	.005500	.000700	.....	.....	
11,200	56,000	.006500	.001000	.....	.....	
11,400	57,000	.007200	.000700	.....	.....	
11,600	58,000	.007900	.000700	.....	.....	
11,800	59,000	.008650	.000750	.....	.....	
12,000	60,000	.009400	.000750	.....	.....	
12,400	62,000	.011050	.001650	.....	.....	
12,800	64,000	.012500	.001450	.....	.....	
13,200	66,000	.014150	.001650	.....	.....	
13,600	68,000	.016000	.001850	.....	.....	
14,000	70,000	.017250	.001250			Tensile strength.
14,400	72,000	.020600	.003350	.....	.....	
14,800	74,000	.022500	.001900	.....	.....	
15,200	76,000	.025000	.002500	.....	.....	
15,600	78,000	.027000	.002000	.....	.....	
16,000	80,000	.029500	.002500	.....	.....	
16,400	82,000	.032550	.003150	.....	.....	
16,800	84,000	.036250	.003700	.....	.....	
17,200	86,000	.040000	.003750	.....	.....	
17,580	87,900	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	87,900
Elastic limit per square inch of original section.....	do...	50,000
Elongation per inch after rupture.....	inch..	0.0350
Elongation per inch under strain at elastic limit.....	do...	.001750
Reduction in diameter at point of rupture.....	do...	.015
Reduction in area after rupture, per centum of original section.....		5.7
Position of rupture.....	".85 from neck	
Character of broken surface.....	granula	
Elongation of inch sections.....	".05*, ".0	

[Additional specimens.]

No. 2449.

Marks, $^{32}T_{H_{16}}$ Diameter, $\frac{1}{4}$ ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001100	.000200	0.	.....	
8,000	40,000	.001300	.000200	0.	.....	
9,000	45,000	.001500	.000200	0.	.....	
10,000	50,000	.001650	.000150	.....	.....	
10,200	51,000	.001700	.000050	.....	.....	Elastic limit.
10,400	52,000	.001800	.000100	.....	.....	
10,600	53,000	.002250	.000450	.....	.....	
10,800	54,000	.003750	.001500	.....	.....	
11,000	55,000	.004900	.001150	.....	.....	
11,200	56,000	.005900	.001000	.....	.....	
11,400	57,000	.006500	.000600	.....	.....	
11,600	58,000	.007250	.000750	.....	.....	
11,800	59,000	.008500	.001250	.....	.....	
12,000	60,000	.009550	.001050	.....	.....	
12,400	62,000	.010750	.001200	.....	.....	
12,800	64,000	.012100	.001350	.....	.....	
13,200	66,000	.013800	.001700	.....	.....	
13,600	68,000	.015750	.001950	.....	.....	
14,000	70,000	.017750	.002000	.....	.....	
14,400	72,000	.019750	.002000	.....	.....	
14,800	74,000	.022150	.002400	.....	.....	
15,200	76,000	.024050	.001900	.....	.....	
15,600	78,000	.026500	.002450	.....	.....	
16,000	80,000	.029350	.002850	.....	.....	
16,400	82,000	.032650	.003300	.....	.....	
16,800	84,000	.036000	.003350	.....	.....	
17,200	86,000	.040600	.004600	.....	.....	
17,600	88,000	.044050	.003450	.....	.....	
18,000	90,000	.050250	.006200	.....	.....	
18,400	92,000	.0550	.004750	.....	.....	
18,800	94,000	.0650	.0100	.....	.....	
19,200	96,000	.0800	.0150	.....	.....	
19,600	98,000	.1050	.0250	.....	.....	
19,640	98,200	.1300	.0250	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	98,200
Elastic limit per square inch of original section	do...	52,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit	do...	.001800
Reduction in diameter at point of rupture	do...	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture		".65 from neck
Character of broken surface	silky; trace of granulation	
Elongation of inch sections		".29*, ".11

No. 2450.

Marks, $\frac{32T}{T_s} \frac{H_{16}}{H_s}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.		
2,000	10,000	.000250	.000150	0.		
3,000	15,000	.000500	.000250	0.		
4,000	20,000	.000600	.000100	0.		
5,000	25,000	.000750	.000150	0.		
6,000	30,000	.000900	.000150	0.		
7,000	35,000	.001050	.000150	0.		
8,000	40,000	.001200	.000150	0.		
9,000	45,000	.001350	.000150	0.		
10,000	50,000	.001550	.000200	0.		
10,200	51,000	.001600	.000050			Elastic limit.
10,400	52,000	.001700	.000100	.....	.....	
10,600	53,000	.001900	.000200	.....	.....	
10,800	54,000	.003400	.001500	.....	.....	
11,000	55,000	.004350	.000950	.....	.....	
11,200	56,000	.005300	.000950	.....	.....	
11,400	57,000	.006100	.000800	.....	.....	
11,600	58,000	.006750	.000650	.....	.....	
11,800	59,000	.007500	.000750	.....	.....	
12,000	60,000	.008500	.001000	.....	.....	
12,400	62,000	.009850	.001350	.....	.....	
12,800	64,000	.011350	.001500	.....	.....	
13,200	66,000	.012900	.001550	.....	.....	
13,600	68,000	.015200	.002300	.....	.....	
14,000	70,000	.017000	.001800	.....	.....	
14,400	72,000	.019000	.002000	.....	.....	
14,800	74,000	.020900	.001900	.....	.....	
15,200	76,000	.023000	.002100	.....	.....	
15,600	78,000	.025500	.002500	.....	.....	
16,000	80,000	.027900	.002400	.....	.....	
16,400	82,000	.030750	.002850	.....	.....	
16,800	84,000	.034000	.003250	.....	.....	
17,200	86,000	.037550	.003550	.....	.....	
17,600	88,000	.042000	.004450	.....	.....	
18,000	90,000	.046900	.004900	.....	.....	
18,400	92,000	.053500	.006600	.....	.....	
18,800	94,000	.0600	.0065	.....	.....	
19,200	96,000	.0750	.0150	.....	.....	
19,600	98,000	.0950	.0200	.....	.....	
19,800	99,000	.1450	.0500			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	99,000
Elastic limit per square inch of original section.....	do..	52,000
Elongation per inch after rupture.....	inch..	0.2200
Elongation per inch under strain at elastic limit.....	do..	.001700
Reduction in diameter at point of rupture.....	do..	.105
Reduction in area after rupture, per centum of original section.....		37.1
Position of rupture.....	at middle of stem	
Character of broken surface.....	silky; trace of granulation	
Elongation of inch sections.....	.21*, .23*	

No. 2450a.

Marks, $^{32}T_{H_{16}}$
 T_6

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001150	.000150	0.	.....	
9,000	45,000	.001350	.000200	0.	.....	
10,000	50,000	.001550	.000200			Elastic limit.
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.002100	.000500	.....	.....	
10,600	53,000	.003550	.001450	.....	.....	
10,800	54,000	.004700	.001150	.....	.....	
11,000	55,000	.005250	.000550	.....	.....	
11,200	56,000	.006000	.000750	.....	.....	
11,400	57,000	.006950	.000950	.....	.....	
11,600	58,000	.007700	.000750	.....	.....	
11,800	59,000	.008500	.000800	.....	.....	
12,000	60,000	.009500	.001000	.....	.....	
12,400	62,000	.010700	.001200	.....	.....	
12,800	64,000	.012350	.001650	.....	.....	
13,200	66,000	.014350	.002000	.....	.....	
13,600	68,000	.016200	.001850	.....	.....	
14,000	70,000	.018100	.001900	.....	.....	
14,400	72,000	.020000	.001900	.....	.....	
14,800	74,000	.022500	.002500	.....	.....	
15,200	76,000	.024500	.002000	.....	.....	
15,600	78,000	.027100	.002600	.....	.....	
16,000	80,000	.029700	.002600	.....	.....	
16,400	82,000	.032900	.003200	.....	.....	
16,800	84,000	.036500	.003600	.....	.....	
17,200	86,000	.040350	.003850	.....	.....	
17,600	88,000	.045350	.005000	.....	.....	
18,000	90,000	.051000	.005650	.....	.....	
18,400	92,000	.0550	.0040	.....	.....	
18,800	94,000	.0650	.0100	.....	.....	
19,200	96,000	.0900	.0250	.....	.....	
19,590	97,950	.1400	.0500			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	97,950
Elastic limit per square inch of original section	do...	51,000
Elongation per inch after rupture	inch..	0.1950
Elongation per inch under strain at elastic limit	do...	.001600
Reduction in diameter at point of rupture	do...	.095
Reduction in area after rupture, per centum of original section		34.0
Position of rupture	" .80 from neck	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	" .12, ".27*	

No. 2460

Marks, ^{32 T H₁₇}_{T₁}Diameter, ¹¹/₁₆.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000700	.000250	0.	.....	
5,000	25,000	.000950	.000250	0.	.....	
6,000	30,000	.001100	.000150	0.	.....	
7,000	35,000	.001250	.000150	0.	.....	
8,000	40,000	.001400	.000150	.....	.....	
9,000	45,000	.001600	.000200	.....	.....	
10,000	50,000	.002000	.000400			Elastic limit.
10,200	51,000	.002100	.000100	.....	.....	
10,400	52,000	.002150	.000050	.....	.....	
10,600	53,000	.002550	.000400	.....	.....	
10,800	54,000	.004000	.001450	.....	.....	
11,000	55,000	.004750	.000750	.....	.....	
11,200	56,000	.005650	.000900	.....	.....	
11,400	57,000	.006500	.000850	.....	.....	
11,600	58,000	.007250	.000750	.....	.....	
11,800	59,000	.008150	.000900	.....	.....	
12,000	60,000	.009000	.000850	.....	.....	
12,400	62,000	.010500	.001500	.....	.....	
12,800	64,000	.012000	.001500	.....	.....	
13,200	66,000	.013750	.001750	.....	.....	
13,600	68,000	.015150	.001400	.....	.....	
14,000	70,000	.017000	.001850	.....	.....	
14,400	72,000	.019350	.002350	.....	.....	
14,800	74,000	.021250	.001900	.....	.....	
15,200	76,000	.023250	.002000	.....	.....	
15,600	78,000	.025600	.002350	.....	.....	
16,000	80,000	.028050	.002450	.....	.....	
16,400	82,000	.031050	.003000	.....	.....	
16,800	84,000	.034250	.003200	.....	.....	
17,200	86,000	.037000	.002750	.....	.....	
17,600	88,000	.042250	.005250	.....	.....	
18,000	90,000	.046000	.003750	.....	.....	
18,400	92,000	.0500	.0040	.....	.....	
18,800	94,000	.0550	.0050	.....	.....	
19,200	96,000	.0600	.0100	.....	.....	
19,600	98,000	.0900	.0250	.....	.....	
19,920	99,600	.1300	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	99,600
Elastic limit per square inch of original section.....	do...	52,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do...	.002150
Reduction in diameter at point of rupture.....	do...	.105
Reduction in area after rupture, per centum of original section.....		37.1
Position of rupture.....		" .55 from neck
Character of broken surface.....	granular, 70 per centum; silky, 30 per centum	
Elongation of inch sections.....		".25*, ".15

No. 2461.

Marks, $^{32}T_{H_{17}}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.		
2,000	10,000	.000400	.000200	0.		
3,000	15,000	.000550	.000150	0.		
4,000	20,000	.000750	.000200	0.		
5,000	25,000	.000900	.000150	0.		
6,000	30,000	.001100	.000200	0.		
7,000	35,000	.001250	.000150			
8,000	40,000	.001400	.000150			
9,000	45,000	.001550	.000150			
10,000	50,000	.001800	.000250			
10,200	51,000	.001800	0.			
10,400	52,000	.001850	.000050			
10,600	53,000	.001900	.000050			
10,800	54,000	.002000	.000100			Elastic limit.
11,000	55,000	.004200	.002200			
11,200	56,000	.004900	.000700			
11,400	57,000	.006000	.001100			
11,600	58,000	.006500	.000500			
11,800	59,000	.007250	.000750			
12,000	60,000	.007900	.000650			
12,400	62,000	.009700	.001800			
12,800	64,000	.011250	.001550			
13,200	66,000	.012750	.001500			
13,600	68,000	.014300	.001550			
14,000	70,000	.015850	.001550			
14,400	72,000	.018000	.002150			
14,800	74,000	.019750	.001750			
15,200	76,000	.022200	.002450			
15,600	78,000	.024500	.002300			
16,000	80,000	.026750	.002250			
16,400	82,000	.029500	.002750			
16,800	84,000	.032250	.002750			
17,200	86,000	.035600	.003350			
17,600	88,000	.039000	.003400			
18,000	90,000	.043050	.004050			
18,400	92,000	.048500	.005450			
18,800	94,000	.0550	.0065			
19,200	96,000	.0600	.0050			
19,600	98,000	.0700	.0100			
20,000	100,000	.1000	.0300			
20,200	101,000	.1300	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	101,000
Elastic limit per square inch of original section.....	do..	54,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do..	.002000
Reduction in diameter at point of rupture.....	do..	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....	".60 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".27*, ".13	

No. 2462.

Marks, $^{32}T_{H_{17}}$
 T_3

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000600	.000250	0.	.....	
4,000	20,000	.000800	.000200	0.	.....	
5,000	25,000	.001000	.000200	0.	.....	
6,000	30,000	.001150	.000150	0.	.....	
7,000	35,000	.001300	.000150	.....	.....	
8,000	40,000	.001450	.000150	.....	.....	
9,000	45,000	.001600	.000150	.....	.....	
9,600	48,000	.001700	.000100			Elastic limit.
9,800	49,000	.001750	.000050	.....	.....	
10,000	50,000	.001800	.000050	.....	.....	
10,200	51,000	.001850	.000050	.....	.....	
10,400	52,000	.002100	.000250	.....	.....	
10,600	53,000	.003500	.001400	.....	.....	
10,800	54,000	.005150	.001650	.....	.....	
11,000	55,000	.006250	.001100	.....	.....	
11,200	56,000	.007000	.000750	.....	.....	
11,400	57,000	.007600	.000600	.....	.....	
11,600	58,000	.008250	.000650	.....	.....	
11,800	59,000	.008900	.000650	.....	.....	
12,000	60,000	.009600	.000700	.....	.....	
12,400	62,000	.011700	.002100	.....	.....	
12,800	64,000	.013200	.001500	.....	.....	
13,200	66,000	.014750	.001550	.....	.....	
13,600	68,000	.016050	.001300	.....	.....	
14,000	70,000	.018000	.001950	.....	.....	
14,400	72,000	.020000	.002000	.....	.....	
14,800	74,000	.022000	.002000	.....	.....	
15,200	76,000	.024050	.002050	.....	.....	
15,600	78,000	.026500	.002450	.....	.....	
16,000	80,000	.029250	.002750	.....	.....	
16,400	82,000	.032050	.002800	.....	.....	
16,800	84,000	.035500	.003450	.....	.....	
17,200	86,000	.039000	.003500	.....	.....	
17,600	88,000	.044000	.005000	.....	.....	
18,000	90,000	.049500	.005500	.....	.....	
18,400	92,000	.0550	.0055	.....	.....	
18,800	94,000	.0600	.0050	.....	.....	
19,200	96,000	.0750	.0150	.....	.....	
19,600	98,000	.1000	.0250	.....	.....	
19,710	98,550	.1250	.0250			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	98,550
Elastic limit per square inch of original section	do...	51,000
Elongation per inch after rupture	inch..	0.1800
Elongation per inch under strain at elastic limit	do...	.001850
Reduction in diameter at point of rupture	do...	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture	".62 from neck	
Character of broken surface	granular, 50 per centum; silky, 50 per centum	
Elongation of inch sections	".27*, ".09	

No. 2392.

Marks, $^{32}T_{H_{18}}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	.....	.....	
8,000	40,000	.001200	.000150	.....	.....	
9,000	45,000	.001400	.000200	.....	.....	
10,000	50,000	.001600	.000200			Elastic limit
10,200	51,000	.001700	.000100	.....	.....	
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.001850	.000100	.....	.....	
10,800	54,000	.002350	.000500	.....	.....	
11,000	55,000	.003500	.001150	.....	.....	
11,200	56,000	.004250	.000750	.....	.....	
11,400	57,000	.005150	.000900	.....	.....	
11,600	58,000	.006150	.001000	.....	.....	
11,800	59,000	.007050	.000900	.....	.....	
12,000	60,000	.007650	.000600			Tensile strength.
12,400	62,000	.009250	.001600	.....	.....	
12,800	64,000	.011000	.001750	.....	.....	
13,200	66,000	.012350	.001350	.....	.....	
13,600	68,000	.014600	.002250	.....	.....	
14,000	70,000	.016500	.001900	.....	.....	
14,400	72,000	.018150	.001650	.....	.....	
14,800	74,000	.020000	.001850	.....	.....	
15,200	76,000	.022250	.002250	.....	.....	
15,600	78,000	.024350	.002100	.....	.....	
16,000	80,000	.027000	.002650	.....	.....	
16,400	82,000	.029550	.002550	.....	.....	
16,800	84,000	.032500	.002950	.....	.....	
17,200	86,000	.036550	.004050	.....	.....	
17,600	88,000	.040000	.003450	.....	.....	
18,000	90,000	.045000	.005000	.....	.....	
18,400	92,000	.051000	.006000	.....	.....	
18,800	94,000	.0550	.0040	.....	.....	
19,050	95,250	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	95,250
Elastic limit per square inch of original section.....	do...	53,000
Elongation per inch after rupture.....	inch..	0.0550
Elongation per inch under strain at elastic limit.....	do...	.001850
Reduction in diameter at point of rupture.....	do...	.025
Reduction in area after rupture, per centum of original section.....		9.5
Position of rupture.....	".55 from neck	
Character of broken surface.....	granular	
Elongation of inch sections.....	".06*, ".05	

No. 2393.

Marks, $\frac{32}{T_2} T H_{18}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	— .000050	— .000050	
2,000	10,000	.000250	.000150	— .000050	0.	
3,000	15,000	.000350	.000100	— .000050	0.	
4,000	20,000	.000500	.000150	— .000050	0.	
5,000	25,000	.000750	.000250	— .000050	0.	
6,000	30,000	.000900	.000150	— .000050	0.	
7,000	35,000	.001100	.000200	.....	.....	
8,000	40,000	.001300	.000200	.....	.....	
9,000	45,000	.001450	.000150	.....	.....	
10,000	50,000	.001600	.000150			Elastic limit.
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001750	.000100	.....	.....	
10,600	53,000	.001850	.000100	.....	.....	
10,800	54,000	.002350	.000500	.....	.....	
11,000	55,000	.003250	.000900	.....	.....	
11,200	56,000	.004500	.001250	.....	.....	
11,400	57,000	.005650	.001150	.....	.....	
11,600	58,000	.006350	.000700	.....	.....	
11,800	59,000	.007150	.000800	.....	.....	
12,000	60,000	.008050	.000900	.....	.....	
12,400	62,000	.009700	.001650	.....	.....	
12,800	64,000	.011500	.001800	.....	.....	
13,200	66,000	.013350	.001850	.....	.....	
13,600	68,000	.015150	.001800	.....	.....	
14,000	70,000	.017050	.001900	.....	.....	
14,400	72,000	.019050	.002000	.....	.....	
14,800	74,000	.021000	.001950	.....	.....	
15,200	76,000	.023000	.002000	.....	.....	
15,600	78,000	.025600	.002600	.....	.....	
16,000	80,000	.028250	.002650	.....	.....	
16,400	82,000	.031050	.002800	.....	.....	
16,800	84,000	.034500	.003450	.....	.....	
17,200	86,000	.038000	.003500	.....	.....	
17,600	88,000	.042550	.004550	.....	.....	
18,000	90,000	.047500	.004950	.....	.....	
18,400	92,000	.0500	.0025	.....	.....	
18,800	94,000	.0600	.0100	.....	.....	
19,200	96,000	.0800	.0200	.....	.....	
19,600	98,000	.0950	.0150	.....	.....	
19,780	98,900	.1350	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	98,900
Elastic limit per square inch of original section	do..	53,000
Elongation per inch after rupture	inch..	0.1600
Elongation per inch under strain at elastic limit	do..	.001850
Reduction in diameter at point of rupture	do..	.055
Reduction in area after rupture, per centum of original section		20.5
Position of rupture	".85 from neck	
Character of broken surface	granular	
Elongation of inch sections	".18", ".14	

No. 2394.

Marks, $^{32}T_{H_{18}}$
 T_3

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000350	.000100	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000600	.000100	0.	.....	
6,000	30,000	.000750	.000150	0.	.....	
7,000	35,000	.001000	.000250	.....	.....	
8,000	40,000	.001150	.000150	.....	.....	
9,000	45,000	.001400	.000250	.....	.....	
10,000	50,000	.001550	.000150			Elastic limit.
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001600	0.	.....	.....	
10,600	53,000	.001650	.000050	.....	.....	
10,800	54,000	.001750	.000100	.....	.....	
11,000	55,000	.002100	.000350	.....	.....	
11,200	56,000	.003550	.001450	.....	.....	
11,400	57,000	.005500	.001950	.....	.....	
11,600	58,000	.007000	.001500	.....	.....	
11,800	59,000	.007750	.000750	.....	.....	
12,000	60,000	.008500	.000750	.....	.....	
12,400	62,000	.010000	.001500	.....	.....	
12,800	64,000	.012000	.002000	.....	.....	
13,200	66,000	.013550	.001550	.....	.....	
13,600	68,000	.015600	.002050	.....	.....	
14,000	70,000	.017600	.002000	.....	.....	
14,400	72,000	.019650	.002050	.....	.....	
14,800	74,000	.021800	.002150	.....	.....	
15,200	76,000	.024550	.002750	.....	.....	
15,600	78,000	.027250	.002700	.....	.....	
16,000	80,000	.030100	.002850			Tensile strength.
16,400	82,000	.033550	.003450	.....	.....	
16,800	84,000	.037500	.003950	.....	.....	
17,200	86,000	.041750	.004250	.....	.....	
17,600	88,000	.046650	.004900	.....	.....	
18,000	90,000	.053250	.006600	.....	.....	
18,400	92,000	.0600	.006750	.....	.....	
18,800	94,000	.0700	.0100	.....	.....	
19,200	96,000	.1000	.0300	.....	.....	
19,400	97,000	.1450	.0450	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	97,000
Elastic limit per square inch of original section.....	do...	54,000
Elongation per inch after rupture.....	inch..	0.2250
Elongation per inch under strain at elastic limit.....	do...	.001750
Reduction in diameter at point of rupture.....	do...	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....		".95 from neck
Character of broken surface.....	silky, 40 per centum; granular, 60 per centum; irregular surface	
Elongation of inch sections.....		".28", ".17

H, Ex. 31—25.

[Additional specimens.]

No. 2570.

Marks, $^{32}T H_{18}$
 T_4

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001350	.000200	0.	.....	
9,000	45,000	.001500	.000150			Elastic limit.
9,200	46,000	.001550	.000050	.....	.....	
9,400	47,000	.001600	.000050	.....	.....	
9,600	48,000	.012250	.010650	.....	.....	
9,800	49,000	.012750	.000500	.....	.....	
10,000	50,000	.013550	.000800	.....	.....	
10,200	51,000	.014350	.000800	.....	.....	
10,400	52,000	.015250	.000900	.....	.....	
10,600	53,000	.016150	.000900	.....	.....	
10,800	54,000	.017100	.000950	.....	.....	
11,000	55,000	.017850	.000750	.....	.....	
11,200	56,000	.018900	.001050	.....	.....	
11,400	57,000	.019800	.000900	.....	.....	
11,600	58,000	.020850	.001050	.....	.....	
11,800	59,000	.022000	.001150	.....	.....	
12,000	60,000	.023050	.001050			Tensile strength.
12,400	62,000	.025600	.002550	.....	.....	
12,800	64,000	.028000	.002400	.....	.....	
13,200	66,000	.031050	.003050	.....	.....	
13,600	68,000	.034000	.002950	.....	.....	
14,000	70,000	.037600	.003600	.....	.....	
14,400	72,000	.041500	.003900	.....	.....	
14,800	74,000	.045750	.004250	.....	.....	
15,200	76,000	.050000	.004250	.....	.....	
15,600	78,000	.0550	.0050	.....	.....	
16,000	80,000	.0600	.0050	.....	.....	
16,400	82,000	.0750	.0150	.....	.....	
16,800	84,000	.0850	.0100	.....	.....	
17,200	86,000	.0950	.0100	.....	.....	
17,600	88,000	.1350	.0400	.....	.....	
17,760	88,800	.1800	.0450	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	88,800
Elastic limit per square inch of original section.....	do...	47,000
Elongation per inch after rupture.....	inch..	0.2300
Elongation per inch under strain at elastic limit	do ..	.001600
Reduction in diameter at point of rupture	do...	.095
Reduction in area after rupture, per centum of original section		34
Position of rupture		".45 from neck
Character of broken surface.....	granular; dull silky spot at the circumference	
Elongation of inch sections.....		".15, ".31*

No. 2571.

Marks, $^{32}T H_{18}$

Diameter, ".505.

Sectional area, .20 inch square.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000750	.000250	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001250	.000200	0.		Elastic limit.
9,000	45,000	.001400	.000150	.....	.....	
9,200	46,000	.011900	.010500	.....	.....	
9,400	47,000	.012900	.001000	.....	.....	
9,600	48,000	.013750	.000850	.....	.....	
9,800	49,000	.014550	.000800	.....	.....	
10,000	50,000	.015600	.001050	.....	.....	
10,200	51,000	.016500	.000900	.....	.....	
10,400	52,000	.017500	.001000	.....	.....	
10,600	53,000	.018500	.001000	.....	.....	
10,800	54,000	.019500	.001000	.....	.....	
11,000	55,000	.020600	.001100	.....	.....	
11,200	56,000	.021150	.000550	.....	.....	
11,400	57,000	.022500	.001350	.....	.....	
11,600	58,000	.024350	.001850	.....	.....	
11,800	59,000	.025600	.001250	.....	.....	
12,000	60,000	.026800	.001200	.....	.....	
12,400	62,000	.029700	.002900	.....	.....	
12,800	64,000	.033150	.003400	.....	.....	
13,200	66,000	.036600	.003450	.....	.....	
13,600	68,000	.041000	.004400	.....	.....	
14,000	70,000	.047000	.006000	.....	.....	
14,400	72,000	.052500	.005500	.....	.....	
14,800	74,000	.0600	.0075	.....	.....	
15,200	76,000	.0650	.0050	.....	.....	
15,600	78,000	.0800	.0150	.....	.....	
16,000	80,000	.0950	.0150	.....	.....	
16,400	82,000	.1150	.0200	.....	.....	
16,700	83,500	.1850	.0700			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	83,500
Elastic limit per square inch of original section	do...	45,000
Elongation per inch after rupture	inch..	0.3050
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.185
Reduction in area after rupture, per centum of original section		59.8
Position of rupture	1 inch from neck	
Character of broken surface	fine, silky; cup-shaped end	
Elongation of inch sections	".18, ".43*	

No. 2572.

Marks, $\frac{32}{T_6} T_{H18}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
8,200	41,000	.001250	.000050	.....	.....	
8,400	42,000	.001300	.000050	.....	.....	
8,600	43,000	.001300	0.	.....	.....	
8,800	44,000	.001400	.000100			Elastic limit.
9,000	45,000	.010600	.009200	.....	.....	
9,200	46,000	.011500	.000900	.....	.....	
9,400	47,000	.012150	.000650	.....	.....	
9,600	48,000	.013150	.001000	.....	.....	
9,800	49,000	.014000	.000850	.....	.....	
10,000	50,000	.015000	.001000	.....	.....	
10,400	52,000	.016750	.001750	.....	.....	
10,800	54,000	.018850	.002100	.....	.....	
11,200	56,000	.020850	.002000	.....	.....	
11,600	58,000	.023250	.002400	.....	.....	
12,000	60,000	.025750	.002500	.....	.....	
12,400	62,000	.028750	.003000	.....	.....	
12,800	64,000	.032150	.003400	.....	.....	
13,200	66,000	.035250	.003100	.....	.....	
13,600	68,000	.040000	.004750	.....	.....	
14,000	70,000	.045000	.005000	.....	.....	
14,400	72,000	.050250	.005250	.....	.....	
14,800	74,000	.0550	.004750	.....	.....	
15,200	76,000	.0600	.0050	.....	.....	
15,600	78,000	.0750	.0150	.....	.....	
16,000	80,000	.0900	.0150	.....	.....	
16,400	82,000	.1050	.0150	.....	.....	
16,800	84,000	.1550	.0500	.....	.....	
16,840	84,200	.1800	.0250			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	84,200
Elastic limit per square inch of original section.....	do...	44,000
Elongation per inch after rupture.....	inch..	0.3100
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.185
Reduction in area after rupture, per centum of original section.....		59.8
Position of rupture.....	at middle of stem	
Character of broken surface.....	silky; cup-shaped end	
Elongation of inch sections.....	".27", ".35"	

NEW TRUNNION HOOP No. 18.

No. 2609.

Marks, ³² T H ₁₈Diameter, ^{T₇} 1.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000400	.000200	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000650	.000100	0.	.....	
6,000	30,000	.000750	.000100	0.	.....	
7,000	35,000	.000950	.000200	0.	.....	
8,000	40,000	.001100	.000150	0.	.....	
9,000	45,000	.001300	.000200			Elastic limit.
9,600	48,000	.001450	.000150	.....	.....	
9,800	49,000	.001500	.000050	.....	.....	
10,000	50,000	.001550	.000050	.....	.....	
10,200	51,000	.001750	.000200	.....	.....	
10,400	52,000	.003400	.001650	.....	.....	
10,600	53,000	.004900	.001500	.....	.....	
10,800	54,000	.006000	.001100	.....	.....	
11,000	55,000	.006750	.000750	.....	.....	
11,200	56,000	.007750	.001000	.....	.....	
11,600	58,000	.009000	.001250	.....	.....	
12,000	60,000	.011500	.002500	.....	.....	
12,400	62,000	.013750	.002250	.....	.....	
12,800	64,000	.015500	.001750	.....	.....	
13,200	66,000	.017500	.002000	.....	.....	
13,600	68,000	.020000	.002500	.....	.....	
14,000	70,000	.022250	.002250	.....	.....	
14,400	72,000	.024650	.002400	.....	.....	
14,800	74,000	.027000	.002350	.....	.....	
15,200	76,000	.029750	.002750	.....	.....	
15,600	78,000	.033500	.003750	.....	.....	
16,000	80,000	.035650	.002150	.....	.....	
16,400	82,000	.039500	.003850	.....	.....	
16,800	84,000	.044500	.005000	.....	.....	
17,200	86,000	.049250	.004750	.....	.....	
17,600	88,000	.0550	.005750	.....	.....	
18,000	90,000	.0600	.0050	.....	.....	
18,400	92,000	.0800	.0200	.....	.....	
18,800	94,000	.1000	.0200	.....	.....	
19,010	95,050	.1350	.0350			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	95,050
Elastic limit per square inch of original section	do...	50,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit	do...	.001550
Reduction in diameter at point of rupture	do...	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture	1".10 from neck	
Character of broken surface	granular, 60 per centum; silky, 40 per centum	
Elongation of inch sections	".13, ".27*	

No. 2610.

Marks, $^{32}T H_{18}$ Diameter, $^{11}.505$.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000700	.000100	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001200	.000200	0.	.....	
9,000	45,000	.001400	.000200	.....	.....	
9,200	46,000	.001450	.000050			Elastic limit.
9,400	47,000	.001500	.000050	.....	.....	
9,600	48,000	.001550	.000050	.....	.....	
9,800	49,000	.001500	0.	.....	.....	
10,000	50,000	.001600	.000050	.....	.....	
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.002000	.000350	.....	.....	
10,600	53,000	.004250	.002250	.....	.....	
10,800	54,000	.005600	.001350	.....	.....	
11,000	55,000	.006500	.000900	.....	.....	
11,200	56,000	.007050	.000550			
11,400	57,000	.008000	.000950	.....	.....	
11,600	58,000	.008850	.000850	.....	.....	
11,800	59,000	.009850	.001000	.....	.....	
12,000	60,000	.010750	.000900	.....	.....	
12,400	62,000	.012800	.002050	.....	.....	
12,800	64,000	.014800	.002000	.....	.....	
13,200	66,000	.017000	.002200	.....	.....	
13,600	68,000	.019000	.002000	.....	.....	
14,000	70,000	.021100	.002100	.....	.....	
14,400	72,000	.023500	.002400			
14,800	74,000	.026050	.002550	.....	.....	
15,200	76,000	.029000	.002950	.....	.....	
15,600	78,000	.032900	.003900	.....	.....	
16,000	80,000	.037750	.004850	.....	.....	
16,400	82,000	.040000	.002250	.....	.....	
16,800	84,000	.044000	.004000	.....	.....	
17,200	86,000	.0500	.0060	.....	.....	
17,600	88,000	.0550	.0050	.....	.....	
18,000	90,000	.0650	.0100	.....	.....	
18,400	92,000	.0850	.0200			Tensile strength.
18,800	94,000	.1050	.0200	.....	.....	
18,980	94,900	.1550	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	94,900
Elastic limit per square inch of original section.....	do...	51,000
Elongation per inch after rupture.....	inch..	0.1950
Elongation per inch under strain at elastic limit.....	do...	.001650
Reduction in diameter at point of rupture.....	do...	.085
Reduction in area after rupture, per centum of original section.....		30.7
Position of rupture.....	at middle of stem	
Character of broken surface.....	granular, 75 per centum; silky, 25 per centum	
Elongation of inch sections.....	".17*, ".22*	

No. 2611.

Marks, ^{32 T H₁₈}_{T₉}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000250	.000150	0.	-----	
3,000	15,000	.000450	.000200	0.	-----	
4,000	20,000	.000600	.000150	0.	-----	
5,000	25,000	.000750	.000150	0.	-----	
6,000	30,000	.000900	.000150	0.	-----	
7,000	35,000	.001100	.000200	0.	-----	
8,000	40,000	.001300	.000200	0.	-----	
9,000	45,000	.001500	.000200	-----	-----	
9,200	46,000	.001550	.000050	-----	-----	
9,400	47,000	.001650	.000100	-----	-----	
9,600	48,000	.001700	.000050	-----	-----	
9,800	49,000	.001700	0.	-----	-----	Elastic limit.
10,000	50,000	.001950	.000250	-----	-----	
10,200	51,000	.004200	.002250	-----	-----	
10,400	52,000	.005300	.001300	-----	-----	
10,600	53,000	.006200	.000900	-----	-----	
10,800	54,000	.007000	.000800	-----	-----	
11,200	56,000	.009050	.002050	-----	-----	
11,600	58,000	.011000	.001950	-----	-----	
12,000	60,000	.012500	.001500	-----	-----	
12,400	62,000	.014550	.002050	-----	-----	
12,800	64,000	.016500	.001950	-----	-----	
13,200	66,000	.018400	.001900	-----	-----	
13,600	68,000	.020650	.002250	-----	-----	
14,000	70,000	.023000	.002350	-----	-----	
14,400	72,000	.025150	.002150	-----	-----	
14,800	74,000	.028000	.002850	-----	-----	
15,200	76,000	.030850	.002850	-----	-----	
15,600	78,000	.034150	.003300	-----	-----	
16,000	80,000	.037650	.003500	-----	-----	
16,400	82,000	.041500	.003850	-----	-----	
16,800	84,000	.047500	.006000	-----	-----	
17,200	86,000	.052500	.005000	-----	-----	
17,600	88,000	.057500	.005000	-----	-----	
18,000	90,000	.0700	.0125	-----	-----	
18,400	92,000	.0900	.0200	-----	-----	
18,800	94,000	.1050	.0150	-----	-----	
18,940	94,700	.1400	.0350	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	94,700
Elastic limit, per square inch of original section	do...	49,000
Elongation per inch after rupture	inch..	0.1950
Elongation per inch under strain at elastic limit	do...	.001700
Reduction in diameter at point of rupture	do...	.095
Reduction in area after rupture, per centum of original section		34.0
Position of rupture	1".10 from the neck	
Character of broken surface	granular, 60 per centum; silky, 40 per centum	
Elongation of inch sections	".20*, ".19	

No. 2587.

Marks, 32 $T_{H_{19}}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	.....	.....	
2,000	10,000	.000300	.000150	.....	.....	
3,000	15,000	.000450	.000150	.....	.....	
4,000	20,000	.000650	.000200	.....	.....	
5,000	25,000	.000750	.000100	.....	.....	
6,000	30,000	.000900	.000150	.....	.....	
7,000	35,000	.001050	.000150	.....	.....	
8,000	40,000	.001250	.000200	.....	.....	
9,000	45,000	.001400	.000150	.....	.....	
10,000	50,000	.001550	.000150	.....	.....	
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.001750	.000050	.....	.....	
11,000	55,000	.001800	.000050			Elastic limit.
11,200	56,000	.006750	.004950	.....	.....	
11,400	57,000	.007250	.000500	.....	.....	
11,600	58,000	.007750	.000500	.....	.....	
11,800	59,000	.008400	.000650	.....	.....	
12,000	60,000	.008950	.000550	.....	.....	
12,400	62,000	.010250	.081300	.....	.....	
12,800	64,000	.011650	.001400	.....	.....	
13,200	66,000	.013100	.001450	.....	.....	
13,600	68,000	.014750	.001650	.....	.....	
14,000	70,000	.016400	.001650	.....	.....	
14,400	72,000	.018350	.001950	.....	.....	
14,800	74,000	.019750	.001400	.....	.....	
15,200	76,000	.021400	.001650	.....	.....	
15,600	78,000	.023250	.001850	.....	.....	
16,000	80,000	.025100	.001850	.....	.....	
16,400	82,000	.027250	.002150	.....	.....	
16,800	84,000	.029900	.002650	.....	.....	
17,200	86,000	.032500	.002600	.....	.....	
17,600	88,000	.035500	.003000	.....	.....	
18,000	90,000	.038500	.003000			Tensile strength.
18,400	92,000	.042500	.004000	.....	.....	
18,800	94,000	.046500	.004000	.....	.....	
19,200	96,000	.0500	.0035	.....	.....	
19,600	98,000	.0550	.0050	.....	.....	
20,000	100,000	.0600	.0050	.....	.....	
20,400	102,000	.0800	.0200	.....	.....	
20,800	104,000	.0950	.0150	.....	.....	
21,070	105,350	.1150	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	105,350
Elastic limit per square inch of original section.....	do...	55,000
Elongation per inch after rupture.....	inch..	0.1400
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do...	.045
Reduction in area after rupture, per centum of original section.....		16.9
Position of rupture.....		".85 from neck
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections.....		".17*, ".11

No. 2588.

Marks, ^{32 T H₁₉}_{T₂}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000400	.000100	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001200	.000150	.....	.....	
9,000	45,000	.001350	.000150	.....	.....	
10,000	50,000	.001550	.000200			Elastic limit.
10,200	51,000	.001650	.000100	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001700	0.	.....	.....	
10,800	54,000	.001750	.000050	.....	.....	
11,000	55,000	.001800	.000050	.....	.....	
11,200	56,000	.001850	.000050	.....	.....	
11,400	57,000	.003750	.001900	.....	.....	
11,600	58,000	.006750	.003000	.....	.....	
11,800	59,000	.007250	.000500	.....	.....	
12,000	60,000	.008250	.001000			Tensile strength.
12,400	62,000	.009300	.001050	.....	.....	
12,800	64,000	.011000	.001700	.....	.....	
13,200	66,000	.012050	.001050	.....	.....	
13,600	68,000	.013500	.001450	.....	.....	
14,000	70,000	.015230	.001750	.....	.....	
14,400	72,000	.017000	.001750	.....	.....	
14,800	74,000	.018450	.001450	.....	.....	
15,200	76,000	.020250	.001800	.....	.....	
15,600	78,000	.022150	.001200	.....	.....	
16,000	80,000	.024500	.002350			Tensile strength.
16,400	82,000	.026000	.001500	.....	.....	
16,800	84,000	.028000	.002000	.....	.....	
17,200	86,000	.030350	.002350	.....	.....	
17,600	88,000	.033500	.003150	.....	.....	
18,000	90,000	.036750	.003250	.....	.....	
18,400	92,000	.040000	.003250	.....	.....	
18,800	94,000	.043500	.003500	.....	.....	
19,200	96,000	.0475	.0040	.....	.....	
19,600	98,000	.0525	.0050	.....	.....	
20,000	100,000	.0550	.0025			Tensile strength.
20,400	102,000	.0600	.0050	.....	.....	
20,800	104,000	.0800	.0200	.....	.....	
21,200	106,000	.1000	.0200	.....	.....	
21,280	106,400	.1350	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	106,400
Elastic limit per square inch of original section	do...	55,000
Elongation per inch after rupture	inch..	0.1850
Elongation under strain at elastic limit	do...	.001850
Reduction in diameter at point of rupture	do...	.065
Reduction in area after rupture, per centum of original section		23.9
Position of rupture	1".10 from neck	
Character of broken surface, granular; dull spot at circumference; opened cracks in surface of stem		
Elongation of inch sections	".17*, ".20	

No. 2589.

Marks, ³²T H₁₉Diameter, ^{T₃} ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001350	.000200	0.	.....	
9,000	45,000	.001500	.000150	.....	.....	
10,000	50,000	.001650	.000150			Elastic limit.
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.001800	.000050	.....	.....	
10,800	54,000	.001850	.000050	.....	.....	
11,000	55,000	.002350	.000500	.....	.....	
11,200	56,000	.007350	.005000	.....	.....	
11,400	57,000	.008250	.000900	.....	.....	
11,600	58,000	.008750	.000500	.....	.....	
11,800	59,000	.009350	.000600	.....	.....	
12,000	60,000	.009850	.000500	.....	.....	
12,400	62,000	.011200	.001350	.....	.....	
12,800	64,000	.012450	.001250	.....	.....	
13,200	66,000	.014250	.001800	.....	.....	
13,600	68,000	.016000	.001750	.....	.....	
14,000	70,000	.017500	.001500	.....	.....	
14,400	72,000	.019050	.001550	.....	.....	
14,800	74,000	.021050	.002000	.....	.....	
15,200	76,000	.022900	.001850	.....	.....	
15,600	78,000	.025250	.002350	.....	.....	
16,000	80,000	.027500	.002250	.....	.....	
16,400	82,000	.030500	.003000	.....	.....	
16,800	84,000	.032750	.002250	.....	.....	
17,200	86,000	.035750	.003000	.....	.....	
17,600	88,000	.039300	.003550	.....	.....	
18,000	90,000	.042900	.003600	.....	.....	
18,400	92,000	.046750	.003850	.....	.....	
18,800	94,000	.0550	.008250	.....	.....	
19,200	96,000	.0600	.0050	.....	.....	
19,600	98,000	.0650	.0050	.....	.....	
20,000	100,000	.0750	.0100	.....	.....	
20,400	102,000	.0950	.0200	.....	.....	
20,720	103,600	.1400	.0450			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	103,600
Elastic limit per square inch of original section.....	do...	54,000
Elongation per inch after rupture.....	inch..	0.1750
Elongation per inch under strain at elastic limit.....	do...	.001850
Reduction in diameter at point of rupture.....	do...	.045
Reduction in area after rupture, per centum of original section.....		16.9
Position of rupture.....		1".05 from neck
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections.....		".15, ".20*

No. 2513.

Marks, $\frac{32}{T_1} T H_{20}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000700	.000200	0.	.....	
5,000	25,000	.000800	.000100	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001500	.000200	.....	.....	
10,000	50,000	.001650	.000150			Elastic limit.
10,200	51,000	.001750	.000100	.....	.....	
10,400	52,000	.002250	.000500	.....	.....	
10,600	53,000	.003200	.000950	.....	.....	
10,800	54,000	.004000	.000800	.....	.....	
11,000	55,000	.004800	.000800	.....	.....	
11,200	56,000	.006000	.001200	.....	.....	
11,400	57,000	.007000	.001000	.....	.....	
11,600	58,000	.007750	.000750	.....	.....	
11,800	59,000	.008250	.000500	.....	.....	
12,000	60,000	.008750	.000500	.....	.....	
12,400	62,000	.010500	.001750	.....	.....	
12,800	64,000	.012250	.001750	.....	.....	
13,200	66,000	.014000	.001750	.....	.....	
13,600	68,000	.015600	.001600	.....	.....	
14,000	70,000	.017500	.001900	.....	.....	
14,400	72,000	.020000	.002500	.....	.....	
14,800	74,000	.021750	.001750	.....	.....	
15,200	76,000	.023400	.001650	.....	.....	
15,600	78,000	.026000	.002600	.....	.....	
16,000	80,000	.028750	.002750	.....	.....	
16,400	82,000	.031750	.003000	.....	.....	
16,800	84,000	.034750	.003000	.....	.....	
17,200	86,000	.038000	.003250	.....	.....	
17,600	88,000	.043250	.005250	.....	.....	
18,000	90,000	.0500	.006750	.....	.....	
18,400	92,000	.0550	.0050	.....	.....	
18,800	94,000	.0600	.0050	.....	.....	
19,200	96,000	.0750	.0150	.....	.....	
19,600	98,000	.1000	.0250	.....	.....	
19,680	98,400	.1200	.0200			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	98,400
Elastic limit per square inch of original section.....	do...	51,000
Elongation per inch after rupture.....	inch..	0.1850
Elongation per inch under strain at elastic limit.....	do...	.001750
Reduction in diameter at point of rupture.....	do...	.085
Reduction in area after rupture, per centum of original section.....		30.7
Position of rupture.....		".55 from neck
Character of broken surface.....		granular; dull spot at circumference
Elongation of inch sections.....		".25*, ".12

No. 2514.

Marks, ^{32 T H₂₀}
T₂

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000600	.000100	0.	.....	
5,000	25,000	.000850	.000250	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001350	.000200	0.	.....	
9,000	45,000	.001450	.000100			Elastic limit.
10,000	50,000	.001650	.000200	.....	.....	
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.001950	.000250	.....	.....	
10,600	53,000	.002300	.000350	.....	.....	
10,800	54,000	.003100	.000800	.....	.....	
11,000	55,000	.003900	.000800	.....	.....	
11,200	56,000	.005000	.001100	.....	.....	
11,400	57,000	.005800	.000800	.....	.....	
11,600	58,000	.006700	.000900	.....	.....	
11,800	59,000	.007350	.000650	.....	.....	
12,000	60,000	.008100	.000750	.....	.....	
12,400	62,000	.010000	.001900	.....	.....	
12,800	64,000	.011500	.001500	.....	.....	
13,200	66,000	.013200	.001700	.....	.....	
13,600	68,000	.014800	.001600	.....	.....	
14,000	70,000	.016500	.001700	.....	.....	
14,400	72,000	.018500	.002000	.....	.....	
14,800	74,000	.020300	.001800	.....	.....	
15,200	76,000	.022250	.001950	.....	.....	
15,600	78,000	.024500	.002250	.....	.....	
16,000	80,000	.027000	.002500	.....	.....	
16,400	82,000	.029850	.002850	.....	.....	
16,800	84,000	.032550	.002700	.....	.....	
17,200	86,000	.036250	.003700	.....	.....	
17,600	88,000	.041000	.004750	.....	.....	
18,000	90,000	.0450	.0040	.....	.....	
18,400	92,000	.0500	.0050			Tensile strength.
19,780	98,900	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	98,900
Elastic limit per square inch of original section.....	do...	51,000
Elongation per inch after rupture.....	inch..	0.0500
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do...	.015
Reduction in area after rupture, per centum of original section.....	.....	5.7
Position of rupture.....	".90 from neck	
Character of broken surface.....	granular	
Elongation of inch sections.....	".06", ".04	

No. 2515.

Marks, $^{32}T H_{20}$ Diameter, T_3 .505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000500	.000250	0.	.....	
4,000	20,000	.000600	.000100	0.	.....	
5,000	25,000	.000700	.000100	0.	.....	
6,000	30,000	.000950	.000250	0.	.....	
7,000	35,000	.001050	.000100	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001450	.000150	.....	.....	
10,000	50,000	.001550	.000100			Elastic limit.
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001900	.000300	.....	.....	
10,600	53,000	.002550	.000650	.....	.....	
10,800	54,000	.003600	.001050	.....	.....	
11,000	55,000	.004350	.000750	.....	.....	
11,200	56,000	.005350	.001000	.....	.....	
11,400	57,000	.006250	.000900	.....	.....	
11,600	58,000	.007250	.001000	.....	.....	
11,800	59,000	.008250	.001000	.....	.....	
12,000	60,000	.009500	.001250	.....	.....	
12,400	62,000	.011000	.001500	.....	.....	
12,800	64,000	.012100	.001100	.....	.....	
13,200	66,000	.013900	.001800	.....	.....	
13,600	68,000	.015700	.001800	.....	.....	
14,000	70,000	.017550	.001850	.....	.....	
14,400	72,000	.019750	.002200	.....	.....	
14,800	74,000	.022000	.002250	.....	.....	
15,200	76,000	.023900	.001900	.....	.....	
15,600	78,000	.027000	.003100	.....	.....	
16,000	80,000	.030000	.003000	.....	.....	
16,400	82,000	.033000	.003000	.....	.....	
16,800	84,000	.036500	.003500	.....	.....	
17,200	86,000	.041000	.004500	.....	.....	
17,600	88,000	.0500	.0090	.....	.....	
18,000	90,000	.0550	.0050	.....	.....	
18,400	92,000	.0600	.0050	.....	.....	
18,800	94,000	.0750	.0150	.....	.....	
19,200	96,000	.0950	.0200	.....	.....	
19,300	96,500					Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	96,500
Elastic limit per square inch of original section	do...	51,000
Elongation per inch after rupture	inch..	0.1150
Elongation per inch under strain at elastic limit	do...	.001600
Reduction in diameter at point of rupture	do...	.025
Reduction in area after rupture, per centum of original section		9.5
Position of rupture	".35 from neck	
Character of broken surface	granular	
Elongation of inch sections	".12*, ".11	

[Additional specimens.]

No. 2573.

Marks, $\frac{32}{T_1} T_{H_{20}}$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000700	.000200	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001200	.000150	.....	.....	
9,000	45,000	.001350	.000150	.....	.....	
9,200	46,000	.001400	.000050	.....	.....	
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001500	.000050	.....	.....	Elastic limit.
9,800	49,000	.002250	.000750	.....	.....	
10,000	50,000	.003300	.000050	.....	.....	
10,200	51,000	.004150	.000850	.....	.....	
10,400	52,000	.005150	.001000	.....	.....	
10,600	53,000	.006350	.001200	.....	.....	
10,800	54,000	.007350	.001000	.....	.....	
11,000	55,000	.008100	.000750	.....	.....	
11,200	56,000	.008900	.000800	.....	.....	
11,400	57,000	.009700	.000800	.....	.....	
11,600	58,000	.010500	.000800	.....	.....	
11,800	59,000	.011350	.000850	.....	.....	
12,000	60,000	.012350	.001000	.....	.....	
12,400	62,000	.014150	.001800	.....	.....	
12,800	64,000	.016300	.002150	.....	.....	
13,200	66,000	.018200	.001900	.....	.....	
13,600	68,000	.020250	.002050	.....	.....	
14,000	70,000	.022550	.002300	.....	.....	
14,400	72,000	.025000	.002450	.....	.....	
14,800	74,000	.027500	.002500	.....	.....	
15,200	76,000	.030250	.003750	.....	.....	
15,600	78,000	.033550	.003300	.....	.....	
16,000	80,000	.037250	.003750	.....	.....	
16,400	82,000	.041550	.004300	.....	.....	
16,800	84,000	.047000	.005450	.....	.....	
17,200	86,000	.052500	.005500	.....	.....	
17,600	88,000	.0600	.0075	.....	.....	
18,000	90,000	.0700	.0100	.....	.....	
18,400	92,000	.0950	.0250	.....	.....	
18,800	94,000	.1450	.0500	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	94,000
Elastic limit per square inch of original section	do ..	48,000
Elongation per inch after rupture	inch..	0.2350
Elongation per inch under strain at elastic limit	do ..	.001500
Reduction in diameter at point of rupture	do ..	.115
Reduction in area after rupture, per centum of original section		40.3
Position of rupture		.70 from neck
Character of broken surface	silky; interspersed with fine granulation	
Elongation of inch sections		.33*, .14

No. 2574.

Marks, $^{32}T H_{20}$
 T_5

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000300	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000700	.000200	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000200	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001350	.000150	.....	.....	
9,200	46,000	.001400	.000050	.....	.....	
9,400	47,000	.001500	.000100	.....	.....	
9,600	48,000	.001600	.000100	.....	.....	Elastic limit.
9,800	49,000	.002100	.000500	.....	.....	
10,000	50,000	.002700	.000600	.....	.....	
10,200	51,000	.005000	.002300	.....	.....	
10,400	52,000	.005750	.000750	.....	.....	
10,600	53,000	.006950	.001200	.....	.....	
10,800	54,000	.007450	.000500	.....	.....	
11,000	55,000	.008200	.000750	.....	.....	
11,200	56,000	.009150	.000950	.....	.....	
11,400	57,000	.009900	.000750	.....	.....	
11,600	58,000	.010600	.000700	.....	.....	
11,800	59,000	.011400	.000800	.....	.....	
12,000	60,000	.012150	.000750	.....	.....	
12,400	62,000	.014350	.002200	.....	.....	
12,800	64,000	.016100	.001750	.....	.....	
13,200	66,000	.018000	.001900	.....	.....	
13,600	68,000	.020050	.002050	.....	.....	
14,000	70,000	.022550	.002500	.....	.....	
14,400	72,000	.025050	.002500	.....	.....	
14,800	74,000	.027450	.002400	.....	.....	
15,200	76,000	.029600	.002150	.....	.....	
15,600	78,000	.033350	.003750	.....	.....	
16,000	80,000	.037000	.003650	.....	.....	
16,400	82,000	.041000	.004000	.....	.....	
16,800	84,000	.047500	.006500	.....	.....	
17,200	86,000	.053500	.006000	.....	.....	
17,600	88,000	.0600	.0065	.....	.....	
18,000	90,000	.0700	.0100	.....	.....	
18,400	92,000	.0900	.0200	.....	.....	
18,800	94,000	.1250	.0350	.....	.....	
18,810	94,050	.1450	.0200	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	94,050
Elastic limit per square inch of original section.....	do...	48,000
Elongation per inch after rupture.....	inch..	0.2350
Elongation per inch under strain at elastic limit.....	do...	.001600
Reduction in diameter at point of rupture.....	do...	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....		$\frac{3}{4}$ inch from neck
Character of broken surface.....	silky; interspersed with fine granulation	
Elongation of inch sections.....		".32*, ".15

No. 2575.

Marks, $^{32}T_{H_{20}}$ Diameter, $^{11}.505$.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.		
2,000	10,000	.000200	.000100	0.		
3,000	15,000	.000350	.000150	0.		
4,000	20,000	.000450	.000100	0.		
5,000	25,000	.000600	.000150	0.		
6,000	30,000	.000800	.000200	0.		
7,000	35,000	.001000	.000200	0.		
8,000	40,000	.001150	.000150	0.		
9,000	45,000	.001300	.000150			Elastic limit.
9,200	46,000	.001350	.000050	.....	.....	
9,400	47,000	.007900	.006550	.....	.....	
9,600	48,000	.008700	.000800	.....	.....	
9,800	49,000	.009200	.000500	.....	.....	
10,000	50,000	.009900	.000700	.....	.....	
10,200	51,000	.010750	.000850	.....	.....	
10,400	52,000	.011400	.000650	.....	.....	
10,600	53,000	.012150	.000750	.....	.....	
10,800	54,000	.013150	.001000	.....	.....	
11,000	55,000	.014050	.000900	.....	.....	
11,200	56,000	.014850	.000800	.....	.....	
11,400	57,000	.015900	.001050	.....	.....	
11,600	58,000	.016550	.000650	.....	.....	
11,800	59,000	.017450	.000900	.....	.....	
12,000	60,000	.018450	.001000	.....	.....	
12,400	62,000	.020600	.002150	.....	.....	
12,800	64,000	.022750	.002150	.....	.....	
13,200	66,000	.024850	.002100	.....	.....	
13,600	68,000	.028000	.003150	.....	.....	
14,000	70,000	.031250	.003250	.....	.....	
14,400	72,000	.035500	.004250	.....	.....	
14,800	74,000	.038000	.002500	.....	.....	
15,200	76,000	.042000	.004000	.....	.....	
15,600	78,000	.046500	.004500	.....	.....	
16,000	80,000	.052000	.005500	.....	.....	
16,400	82,000	.0600	.0080	.....	.....	
16,800	84,000	.0650	.0050	.....	.....	
17,200	86,000	.0800	.0150	.....	.....	
17,600	88,000	.0950	.0150	.....	.....	
18,000	90,000	.1200	.0250			Tensile strength.
18,100	90,500	.1700	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	90,500
Elastic limit per square inch of original section.....	do...	46,000
Elongation per inch after rupture.....	inch..	0.2600
Elongation per inch under strain at elastic limit.....	do...	.001350
Reduction in diameter at point of rupture.....	do...	.145
Reduction in area after rupture, per centum of original section.....		49.1
Position of rupture.....	".80 from neck	
Character of broken surface.....	fine, silky	
Elongation of inch sections.....	".36*, ".16	

No. 2389.

Marks, $^{32}T_{H_{21}}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000250	.000150	0.	-----	
3,000	15,000	.000450	.000200	0.	-----	
4,000	20,000	.000600	.000150	0.	-----	
5,000	25,000	.000750	.000150	0.	-----	
6,000	30,000	.000900	.000150	0.	-----	
7,000	35,000	.001100	.000200	-----	-----	
8,000	40,000	.001300	.000200	-----	-----	
9,000	45,000	.001500	.000200	-----	-----	
9,600	48,000	.001650	.000150	-----	-----	Elastic limit.
9,800	49,000	.001700	.000050	-----	-----	
10,000	50,000	.003250	.001550	-----	-----	
10,200	51,000	.004950	.001700	-----	-----	
10,400	52,000	.008000	.003050	-----	-----	
10,600	53,000	.009250	.001250	-----	-----	
10,800	54,000	.009750	.000500	-----	-----	
11,000	55,000	.010250	.000500	-----	-----	
11,200	56,000	.010900	.000650	-----	-----	
11,400	57,000	.011900	.001000	-----	-----	
11,600	58,000	.012700	.000800	-----	-----	
11,800	59,000	.013750	.001050	-----	-----	
12,000	60,000	.014750	.001000	-----	-----	
12,400	62,000	.016750	.002000	-----	-----	
12,800	64,000	.019350	.002600	-----	-----	
13,200	66,000	.021300	.001950	-----	-----	
13,600	68,000	.023600	.002300	-----	-----	
14,000	70,000	.026100	.002500	-----	-----	
14,400	72,000	.029250	.003150	-----	-----	
14,800	74,000	.032300	.003050	-----	-----	
15,200	76,000	.035500	.003200	-----	-----	
15,600	78,000	.040000	.004500	-----	-----	
16,000	80,000	.044750	.004750	-----	-----	
16,400	82,000	.050250	.005500	-----	-----	
16,800	84,000	.0555	.004750	-----	-----	
17,200	86,000	.0600	.0050	-----	-----	
17,550	87,750	-----	-----	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	87,750
Elastic limit per square inch of original section.....	do..	49,000
Elongation per inch after rupture.....	inch..	0.0800
Elongation per inch under strain at elastic limit.....	do..	.001700
Reduction in diameter at point of rupture.....	do..	.025
Reduction in area after rupture, per centum of original section.....		9.5
Position of rupture	"	.40 from neck
Character of broken surface	granular; opened cracks in surface of stem	
Elongation of inch sections.....	"	.10*, ".06

H. Ex. 31—26

No. 2390.

Marks, $^{32}T_{H_{21}}$
 T_2

Diameter, ".505.

Sectional area .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000900	.000250	0.	.....	
6,000	30,000	.001100	.000200	0.	.....	
7,000	35,000	.001250	.000150	.....	.....	
8,000	40,000	.001450	.000200	.....	.....	
9,000	45,000	.001550	.000100	.....	.....	
9,200	46,000	.001600	.000050	.....	.....	
9,400	47,000	.001650	.000050	.....	.....	
9,600	48,000	.001700	.000050	.....	.....	Elastic limit.
9,800	49,000	.002000	.000300	.....	.....	
10,000	50,000	.012000	.010000	.....	.....	
10,200	51,000	.012900	.000900	.....	.....	
10,400	52,000	.013550	.000650	.....	.....	
10,600	53,000	.014500	.000950	.....	.....	
10,800	54,000	.015300	.000800	.....	.....	
11,000	55,000	.016050	.000750	.....	.....	
11,200	56,000	.017000	.000950	.....	.....	
11,400	57,000	.018050	.001050	.....	.....	
11,600	58,000	.019050	.001000	.....	.....	
11,800	59,000	.020000	.000950	.....	.....	
12,000	60,000	.021050	.001050	.....	.....	
12,400	62,000	.023500	.002450	.....	.....	
12,800	64,000	.026050	.002450	.....	.....	
13,200	66,000	.029000	.002950	.....	.....	
13,600	68,000	.032250	.003250	.....	.....	
14,000	70,000	.035300	.003050	.....	.....	
14,400	72,000	.039000	.003700	.....	.....	
14,800	74,000	.043750	.004750	.....	.....	
15,200	76,000	.048500	.004750	.....	.....	
15,600	78,000	.0550	.0065	.....	.....	
16,000	80,000	.0600	.0050	.....	.....	
16,400	82,000	.0750	.0150	.....	.....	
16,800	84,000	.0850	.0100	.....	.....	
17,200	86,000	.....	.....	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	86,000
Elastic limit per square inch of original section	do...	48,000
Elongation per inch after rupture	inch..	0.1000
Elongation per inch under strain at elastic limit	do...	.001700
Reduction in diameter at point of rupture	do...	.025
Reduction in area after rupture, per centum of original section		9.5
Position of rupture		".47 from neck
Character of broken surface, granular; radiating from a dull spot at circumference; opened cracks in surface of stem.		
Elongation of inch sections		".11*, ".09

No. 2391.

Marks, $^{32}T_{H_{21}}$
 T_3

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000150	.000200	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001200	.000200	.....	.....	
8,000	40,000	.001350	.000150	.....	.....	
9,000	45,000	.001550	.000200	.....	.....	
9,200	46,000	.001600	.000050	.....	.....	
9,400	47,000	.001600	0.	.....	.....	
9,600	48,000	.001650	.000050	.....	.....	
9,800	49,000	.001700	.000050	.....	.....	Elastic limit.
10,000	50,000	.008250	.006550	.....	.....	
10,200	51,000	.010150	.001900	.....	.....	
10,400	52,000	.010750	.000600	.....	.....	
10,600	53,000	.011250	.000500	.....	.....	
10,800	54,000	.011700	.000450	.....	.....	
11,000	55,000	.012650	.000950	.....	.....	
11,200	56,000	.014000	.001350	.....	.....	
11,400	57,000	.015000	.001000	.....	.....	
11,600	58,000	.015750	.000750	.....	.....	
11,800	59,000	.016550	.000800	.....	.....	
12,000	60,000	.017500	.000950	.....	.....	
12,400	62,000	.019500	.002000	.....	.....	
12,800	64,000	.021500	.002000	.....	.....	
13,200	66,000	.023750	.002250	.....	.....	
13,600	68,000	.026150	.002400	.....	.....	
14,000	70,000	.029100	.002950	.....	.....	
14,400	72,000	.032250	.003150	.....	.....	
14,800	74,000	.035750	.003500	.....	.....	
15,200	76,000	.040000	.004250	.....	.....	
15,600	78,000	.045000	.005000	.....	.....	
16,000	80,000	.050000	.005000	.....	.....	
16,400	82,000	.0550	.0050	.....	.....	
16,800	84,000	.0600	.0050	.....	.....	
17,200	86,000	.0800	.0200	.....	.....	
17,600	88,000	.0950	.0150	.....	.....	
17,990	89,950	.1350	.0400	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	89,950
Elastic limit per square inch of original section.....	do...	49,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do...	1.05
Reduction in area after rupture, per centum of original section.....		37.1
Position of rupture.....		".80 from neck
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections.....		".29*, ".11

[Additional specimens.]

No. 2438.

Marks, ^{32 T H₂₁}
_{T₄}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001350	.000300	0.	.....	
9,000	45,000	.001550	.000200	.....	.....	
9,200	46,000	.001550	0.	.....	.....	
9,400	47,000	.001600	.000050	.....	.....	
9,600	48,000	.001650	.000050			Elastic limit.
9,800	49,000	.002000	.000350	.....	.....	
10,000	50,000	.013750	.011750	.....	.....	
10,200	51,000	.014750	.001000	.....	.....	
10,400	52,000	.015750	.001000	.....	.....	
10,600	53,000	.016400	.000650	.....	.....	
10,800	54,000	.017250	.000850	.....	.....	
11,000	55,000	.018000	.000750	.....	.....	
11,200	56,000	.019100	.001100	.....	.....	
11,400	57,000	.020100	.001000	.....	.....	
11,600	58,000	.021100	.001000	.....	.....	
11,800	59,000	.022150	.001050	.....	.....	
12,000	60,000	.023500	.001350	.....	.....	
12,400	62,000	.025600	.002100	.....	.....	
12,800	64,000	.028050	.002450	.....	.....	
13,200	66,000	.030600	.002550	.....	.....	
13,600	68,000	.034050	.003450	.....	.....	
14,000	70,000	.038000	.003950	.....	.....	
14,400	72,000	.041250	.003250	.....	.....	
14,800	74,000	.045600	.004350	.....	.....	
15,200	76,000	.0550	.0094	.....	.....	
15,600	78,000	.0600	.0050	.....	.....	
16,000	80,000	.0650	.0050	.....	.....	
16,400	82,000	.0750	.0100	.....	.....	
16,800	84,000	.0900	.0150	.....	.....	
17,200	86,000	.1050	.0150	.....	.....	
17,600	88,000	.1550	.0500	.....	.....	
17,630	88,150	.1850	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	88,150
Elastic limit per square inch of original section	do	48,000
Elongation per inch after rupture	inch..	0.2800
Elongation per inch under strain at elastic limit	do	.001650
Reduction in diameter at point of rupture	do	.155
Reduction in area after rupture, per centum of original section		51.9
Position of rupture		".65 from neck
Character of broken surface		fine, silky; cup-shaped end
Elongation of inch sections		".17, ".39*

No. 2439.

Marks, $^{32}T_{H_{21}}$
 T_5

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0	.....	
3,000	15,000	.000350	.000150	0	.....	
4,000	20,000	.000600	.000250	0	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001150	.000200	.....	.....	
8,000	40,000	.001350	.000200	.....	.....	
9,000	45,000	.001500	.000150	.....	.....	
9,200	46,000	.001500	0.			Elastic limit.
9,400	47,000	.001550	.000050	.....	.....	
9,600	48,000	.001600	.000050	.....	.....	
9,800	49,000	.001650	.000050	.....	.....	
10,000	50,000	.001650	0.	.....	.....	
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.005000	.003300	.....	.....	
10,600	53,000	.014800	.009800	.....	.....	
10,800	54,000	.016000	.001200	.....	.....	
11,000	55,000	.016900	.000900	.....	.....	
11,200	56,000	.017500	.000600	.....	.....	
11,400	57,000	.018400	.000900	.....	.....	
11,600	58,000	.019250	.000850	.....	.....	
11,800	59,000	.020400	.001150	.....	.....	
12,000	60,000	.021200	.000800	.....	.....	
12,400	62,000	.023200	.002000	.....	.....	
12,800	64,000	.025150	.001950	.....	.....	
13,200	66,000	.027700	.002550	.....	.....	
13,600	68,000	.030650	.002950	.....	.....	
14,000	70,000	.033750	.003100	.....	.....	
14,400	72,000	.037100	.003350	.....	.....	
14,800	74,000	.041000	.003900	.....	.....	
15,200	76,000	.046000	.005000	.....	.....	
15,600	78,000	.049750	.003750	.....	.....	
16,000	80,000	.055150	.005400	.....	.....	
16,400	82,000	.0600	.004850	.....	.....	
16,800	84,000	.0700	.0100	.....	.....	
17,200	86,000	.0850	.0150	.....	.....	
17,600	88,000	.1000	.0150	.....	.....	
18,000	90,000	.1300	.0300			Tensile strength.
18,140	90,700	.1550	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	90,700
Elastic limit per square inch of original section.....	do...	51,000
Elongation per inch after rupture.....	inch..	0.2500
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do...	.145
Reduction in area after rupture, per centum of original section.....		49.1
Position of rupture.....	".55 from neck	
Character of broken surface.....	fine, silky	
Elongation of inch sections.....	".36*, ".14	

No. 2440.

Marks, ^{32 T H₂₁}
_{T₆}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000500	.000250	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001350	.000200	.....	.....	
9,000	45,000	.001500	.000150	.....	.....	
9,200	46,000	.001550	.000050			Elastic limit.
9,400	47,000	.001550	0.	.....	.....	
9,600	48,000	.001600	.000050	.....	.....	
9,800	49,000	.001650	.000050	.....	.....	
10,000	50,000	.001650	0.	.....	.....	
10,200	51,000	.014250	.012600	.....	.....	
10,400	52,000	.015250	.001000	.....	.....	
10,600	53,000	.015750	.000500	.....	.....	
10,800	54,000	.016600	.000850	.....	.....	
11,000	55,000	.017500	.000900	.....	.....	
11,200	56,000	.018500	.001000			Tensile strength.
11,400	57,000	.019500	.001000	.....	.....	
11,600	58,000	.020500	.001000	.....	.....	
11,800	59,000	.021400	.000900	.....	.....	
12,000	60,000	.022750	.001350	.....	.....	
12,400	62,000	.025150	.002400	.....	.....	
12,800	64,000	.027500	.002350	.....	.....	
13,200	66,000	.030750	.003250	.....	.....	
13,600	68,000	.034000	.003250	.....	.....	
14,000	70,000	.037500	.003500	.....	.....	
14,400	72,000	.041250	.003750			Tensile strength.
14,800	74,000	.046500	.005250	.....	.....	
15,200	76,000	.051500	.005000	.....	.....	
15,600	78,000	.0550	.0035	.....	.....	
16,000	80,000	.0650	.0100	.....	.....	
16,400	82,000	.0800	.0150	.....	.....	
16,800	84,000	.0900	.0100	.....	.....	
17,200	86,000	.1050	.0150	.....	.....	
17,600	88,000	.1550	.0500	.....	.....	
17,610	88,050	.1700	.0150	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	88,050
Elastic limit per square inch of original section	do ..	50,000
Elongation per inch after rupture	inch..	0.2900
Elongation per inch under strain at elastic limit	do...	.001650
Reduction in diameter at point of rupture	do...	.155
Reduction in area after rupture, per centum of original section .....	.....	51.9
Position of rupture	at middle of stem	
Character of broken surface	fine, silky	
Elongation of inch sections	" 28", ".30"	

No. 2516.

Marks, ^{32 T H₂₂}
T₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000650	.000250	0.	.....	
5,000	25,000	.000750	.000100	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001250	.000200	0.	.....	
9,000	45,000	.001450	.000200	.....	.....	
10,000	50,000	.001650	.000200			Elastic limit.
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.001800	.000100	.....	.....	
10,600	53,000	.003900	.002100	.....	.....	
10,800	54,000	.004800	.000900	.....	.....	
11,000	55,000	.005750	.000950	.....	.....	
11,200	56,000	.006750	.001000	.....	.....	
11,400	57,000	.007500	.000750	.....	.....	
11,600	58,000	.008200	.000700	.....	.....	
11,800	59,000	.009000	.000800	.....	.....	
12,000	60,000	.009650	.000650			Tensile strength.
12,400	62,000	.011350	.001700	.....	.....	
12,800	64,000	.012900	.001550	.....	.....	
13,200	66,000	.014600	.001700	.....	.....	
13,600	68,000	.016000	.001400	.....	.....	
14,000	70,000	.018250	.002250	.....	.....	
14,400	72,000	.020250	.002000	.....	.....	
14,800	74,000	.022250	.002000	.....	.....	
15,200	76,000	.025000	.002750	.....	.....	
15,600	78,000	.027250	.002250	.....	.....	
16,000	80,000	.030000	.002750	.....	.....	
16,400	82,000	.033250	.003250	.....	.....	
16,800	84,000	.037000	.003750	.....	.....	
17,200	86,000	.041750	.004750	.....	.....	
17,600	88,000	.0450	.003250	.....	.....	
18,000	90,000	.0550	.0100	.....	.....	
18,400	92,000	.0600	.0050	.....	.....	
18,800	94,000	.0650	.0050	.....	.....	
19,200	96,000	.0850	.0200	.....	.....	
19,600	98,000	.1200	.0350	.....	.....	
19,620	98,100	.1400	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	98,100
Elastic limit per square inch of original section.....	do...	52,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do...	.095
Reduction in area after rupture, per centum of original section.....		34.0
Position of rupture.....		1".05 from neck
Character of broken surface.....	granular; dull, eccentric spot	
Elongation of inch sections.....		".24*, ".16

No. 2517.

Marks, $^{32}T H_{22}$
 T_2

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000350	.000250	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000650	.000100	0.	.....	
5,000	25,000	.000900	.000250	0.	.....	
6,000	30,000	.001100	.000200	0.	.....	
7,000	35,000	.001250	.000150	0.	.....	
8,000	40,000	.001450	.000200	0.	.....	
9,000	45,000	.001600	.000150	.....	.....	
10,000	50,000	.001700	.000100			Elastic limit.
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.002050	.000300	.....	.....	
10,600	53,000	.003050	.001000	.....	.....	
10,800	54,000	.004650	.001600	.....	.....	
11,000	55,000	.005800	.000950	.....	.....	
11,200	56,000	.006300	.000700	.....	.....	
11,400	57,000	.007250	.000950	.....	.....	
11,600	58,000	.008250	.001000	.....	.....	
11,800	59,000	.009000	.000750	.....	.....	
12,000	60,000	.009900	.000900	.....	.....	
12,400	62,000	.011500	.001600	.....	.....	
12,800	64,000	.013500	.002000	.....	.....	
13,200	66,000	.015250	.001750	.....	.....	
13,600	68,000	.017000	.001750	.....	.....	
14,000	70,000	.019000	.002000	.....	.....	
14,400	72,000	.021750	.002750	.....	.....	
14,800	74,000	.024500	.002750	.....	.....	
15,200	76,000	.027500	.003000	.....	.....	
15,600	78,000	.030000	.002500	.....	.....	
16,000	80,000	.032500	.002500	.....	.....	
16,400	82,000	.036000	.003500	.....	.....	
16,800	84,000	.038750	.002750	.....	.....	
17,200	86,000	.043250	.004500	.....	.....	
17,600	88,000	.0500	.006750	.....	.....	
18,000	90,000	.0550	.0050	.....	.....	
18,400	92,000	.0650	.0100	.....	.....	
18,800	94,000	.0850	.0200	.....	.....	
19,200	96,000	.1050	.0200	.....	.....	
19,250	96,250	.1350	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	96,250
Elastic limit per square inch of original section	do...	51,000
Elongation per inch after rupture	inch..	0.1500
Elongation per inch under strain at elastic limit	do...	.001750
Reduction in diameter at point of rupture	do...	.045
Reduction in area after rupture, per centum of original section		16.9
Position of rupture	1 inch from neck	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	".16", ".14	

No. 2518.

Marks, $^{32}T_{H_{22}}$ Diameter, T_3 .505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000350	.000100	0.	.....	
4,000	20,000	.000550	.000200	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001400	.000200			Elastic limit.
10,000	50,000	.001550	.000150	.....	.....	
10,200	51,000	.001650	.000100	.....	.....	
10,400	52,000	.002250	.000600	.....	.....	
10,600	53,000	.003250	.001000	.....	.....	
10,800	54,000	.004350	.001100	.....	.....	
11,000	55,000	.005250	.000900	.....	.....	
11,200	56,000	.006250	.001000	.....	.....	
11,400	57,000	.007150	.000900	.....	.....	
11,600	58,000	.008000	.000850	.....	.....	
11,800	59,000	.008750	.000750	.....	.....	
12,000	60,000	.009500	.000750	.....	.....	
12,400	62,000	.011250	.001750	.....	.....	
12,800	64,000	.013050	.001800	.....	.....	
13,200	66,000	.014750	.001700	.....	.....	
13,600	68,000	.016800	.002050	.....	.....	
14,000	70,000	.019000	.002200	.....	.....	
14,400	72,000	.021000	.002000	.....	.....	
14,800	74,000	.023250	.002250	.....	.....	
15,200	76,000	.025850	.002600	.....	.....	
15,600	78,000	.028550	.002700	.....	.....	
16,000	80,000	.032000	.003450	.....	.....	
16,400	82,000	.035400	.003400	.....	.....	
16,800	84,000	.039500	.004100	.....	.....	
17,200	86,000	.043750	.004250	.....	.....	
17,600	88,000	.0500	.006250	.....	.....	
18,000	90,000	.0550	.0050	.....	.....	
18,400	92,000	.0650	.0100	.....	.....	
18,800	94,000	.0850	.0200	.....	.....	
19,200	96,000	.1050	.0200			Tensile strength.
19,260	96,300	.1350	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	96,300
Elastic limit per square inch of original section.....	do...	51,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do...	.001650
Reduction in diameter at point of rupture.....	do...	.105
Reduction in area after rupture, per centum of original section.....		37.1
Position of rupture.....	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	granular, 60 per centum; silky, 40 per centum	
Elongation of inch sections.....	" .16, " .24*	

No. 2475.

Marks, $^{32}T H_{23}$ Diameter, $^{11}T_1$.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000800	.000150	0.	.....	
7,000	35,000	.001000	.000200	.....	.....	
8,000	40,000	.001150	.000150	.....	.....	
9,000	45,000	.001300	.000150	.....	.....	
10,000	50,000	.001500	.000200			Elastic limit.
10,200	51,000	.001550	.000050	.....	.....	
10,400	52,000	.001550	0.	.....	.....	
10,600	53,000	.002250	.000700	.....	.....	
10,800	54,000	.003250	.001000	.....	.....	
11,000	55,000	.005000	.001750	.....	.....	
11,200	56,000	.006000	.001000	.....	.....	
11,400	57,000	.007250	.001250	.....	.....	
11,600	58,000	.008000	.000750	.....	.....	
11,800	59,000	.008750	.000750	.....	.....	
12,000	60,000	.009500	.000750	.....	.....	
12,400	62,000	.011050	.001550	.....	.....	
12,800	64,000	.013050	.002000	.....	.....	
13,200	66,000	.014900	.001850	.....	.....	
13,600	68,000	.017500	.002600	.....	.....	
14,000	70,000	.019500	.002000	.....	.....	
14,400	72,000	.022000	.002500	.....	.....	
14,800	74,000	.024000	.002000	.....	.....	
15,200	76,000	.026000	.002000	.....	.....	
15,600	78,000	.029250	.003250	.....	.....	
16,000	80,000	.032350	.003100	.....	.....	
16,400	82,000	.035600	.003250	.....	.....	
16,800	84,000	.039500	.003900	.....	.....	
17,200	86,000	.044550	.005050	.....	.....	
17,600	88,000	.050000	.005450	.....	.....	
18,000	90,000	.0600	.0100	.....	.....	
18,400	92,000	.0700	.0100	.....	.....	
18,800	94,000	.0850	.0150	.....	.....	
19,180	95,900	.1250	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	95,900
Elastic limit per square inch of original section	do..	52,000
Elongation per inch after rupture	inch..	0.1300
Elongation per inch under strain at elastic limit	do..	.001550
Reduction in diameter at point of rupture	do..	.045
Reduction in area after rupture, per centum of original section		16.9
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	.15*, .11	

No. 2476.

Marks, $^{32}T_{H23}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000200	.000100	0.	-----	
3,000	15,000	.000400	.000200	0.	-----	
4,000	20,000	.000550	.000150	0.	-----	
5,000	25,000	.000700	.000150	0.	-----	
6,000	30,000	.000950	.000250	0.	-----	
7,000	35,000	.001100	.000150	-----	-----	
8,000	40,000	.001250	.000150	-----	-----	
9,000	45,000	.001400	.000150	-----	-----	
10,000	50,000	.001550	.000150	-----	-----	Elastic limit.
10,200	51,000	.001600	.000050	-----	-----	
10,400	52,000	.001700	.000100	-----	-----	
10,600	53,000	.002100	.000400	-----	-----	
10,800	54,000	.002650	.000550	-----	-----	
11,000	55,000	.003300	.000650	-----	-----	
11,200	56,000	.005000	.001700	-----	-----	
11,400	57,000	.006100	.001100	-----	-----	
11,600	58,000	.007000	.000900	-----	-----	
11,800	59,000	.007800	.000800	-----	-----	
12,000	60,000	.008750	.000950	-----	-----	
12,400	62,000	.010500	.001750	-----	-----	
12,800	64,000	.012050	.001550	-----	-----	
13,200	66,000	.014000	.001950	-----	-----	
13,600	68,000	.016500	.002500	-----	-----	
14,000	70,000	.018500	.002000	-----	-----	
14,400	72,000	.020750	.002250	-----	-----	
14,800	74,000	.022650	.001900	-----	-----	
15,200	76,000	.025000	.002350	-----	-----	
15,600	78,000	.028100	.003100	-----	-----	
16,000	80,000	.031250	.003150	-----	-----	
16,400	82,000	.034500	.003250	-----	-----	
16,800	84,000	.038150	.003650	-----	-----	
17,200	86,000	.041750	.003600	-----	-----	
17,600	88,000	.048000	.006250	-----	-----	
18,000	90,000	.0550	.0070	-----	-----	
18,400	92,000	.0600	.0050	-----	-----	
18,800	94,000	.0800	.0200	-----	-----	
19,200	96,000	{ .1100 .1350	{ .0300 .0250 }	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	96,000
Elastic limit per square inch of original section	do...	52,000
Elongation per inch after rupture	inch..	0.1600
Elongation per inch under strain at elastic limit	do...	.001700
Reduction in diameter at point of rupture	do...	.085
Reduction in area after rupture, per centum of original section		30.7
Position of rupture	inch from neck	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	" .22", ".10	

No. 2477.

Marks, $^{32}T H_{23}$
 T_3 Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000300	.000100	0.	.....	
4,000	20,000	.000450	.000150	0.	.....	
5,000	25,000	.000600	.000150	0.	.....	
6,000	30,000	.000800	.000200	0.	.....	
7,000	35,000	.001000	.000200	.....	.....	
8,000	40,000	.001150	.000150	.....	.....	
9,000	45,000	.001300	.000150			Elastic limit.
10,000	50,000	.001450	.000150	.....	.....	
10,200	51,000	.001500	.000050	.....	.....	
10,400	52,000	.002750	.001250	.....	.....	
10,600	53,000	.003750	.001000	.....	.....	
10,800	54,000	.004750	.001000	.....	.....	
11,000	55,000	.005600	.000850	.....	.....	
11,200	56,000	.006500	.000900	.....	.....	
11,400	57,000	.007400	.000900	.....	.....	
11,600	58,000	.008250	.000850	.....	.....	
11,800	59,000	.009200	.000950	.....	.....	
12,000	60,000	.010050	.000850	.....	.....	
12,400	62,000	.012100	.002050	.....	.....	
12,800	64,000	.014050	.001950	.....	.....	
13,200	66,000	.016000	.001950	.....	.....	
13,600	68,000	.018250	.002250	.....	.....	
14,000	70,000	.020000	.001750	.....	.....	
14,400	72,000	.022550	.002550	.....	.....	
14,800	74,000	.025500	.002950	.....	.....	
15,200	76,000	.028250	.002750	.....	.....	
15,600	78,000	.031250	.003000	.....	.....	
16,000	80,000	.034750	.003500	.....	.....	
16,400	82,000	.038500	.003750	.....	.....	
16,800	84,000	.043500	.005000	.....	.....	
17,200	86,000	.048750	.005250	.....	.....	
17,600	88,000	.0550	.006220	.....	.....	
18,000	90,000	.0600	.0050	.....	.....	
18,400	92,000	.0800	.0200	.....	.....	
18,740	93,700	.1250	.0450			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	93,700
Elastic limit per square inch of original section.....	do..	51,000
Elongation per inch after rupture.....	inch..	0.1500
Elongation per inch under strain at elastic limit.....	do..	0.1500
Reduction in diameter at point of rupture.....	do..	.075
Reduction in area after rupture, per centum of original section.....		27.4
Position of rupture.....		1 inch from neck
Character of broken surface, granular; dull spot at circumference; opened cracks in surface of stem.....		"16", "14
Elongation of inch sections.....		

No. 2294.

Marks, $^{32}T_{H24}$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000300	.000150	0.	-----	
3,000	15,000	.000450	.000150	0.	-----	
4,000	20,000	.000600	.000150	0.	-----	
5,000	25,000	.000750	.000150	0.	-----	
6,000	30,000	.000950	.000200	0.	-----	
7,000	35,000	.001150	.000200	0.	-----	
8,000	40,000	.001300	.000150	0.	-----	
9,000	45,000	.001450	.000150	0.	-----	
10,000	50,000	.001650	.000200	0.	-----	Elastic limit.
10,200	51,000	.001700	.000050	-----	-----	
10,400	52,000	.001800	.000100	-----	-----	
10,600	53,000	.002000	.000200	-----	-----	
10,800	54,000	.002850	.000850	-----	-----	
11,000	55,000	.004050	.001200	-----	-----	
11,200	56,000	.005050	.001000	-----	-----	
11,400	57,000	.006200	.001150	-----	-----	
11,600	58,000	.007100	.000900	-----	-----	
11,800	59,000	.008000	.000900	-----	-----	
12,000	60,000	.009000	.001000	-----	-----	
12,400	62,000	.010650	.001650	-----	-----	
12,800	64,000	.012400	.001750	-----	-----	
13,200	66,000	.014550	.002150	-----	-----	
13,600	68,000	.016500	.001950	-----	-----	
14,000	70,000	.018750	.002250	-----	-----	
14,400	72,000	.021000	.002250	-----	-----	
14,800	74,000	.023000	.002000	-----	-----	
15,200	76,000	.025750	.002750	-----	-----	
15,600	78,000	.028550	.002800	-----	-----	
16,000	80,000	.031550	.003000	-----	-----	
16,400	82,000	.036000	.004450	-----	-----	
16,800	84,000	.040000	.004000	-----	-----	
17,200	86,000	.045000	.005000	-----	-----	
17,600	88,000	.051250	.006250	-----	-----	
18,000	90,000	.0600	.008750	-----	-----	
18,400	92,000	.0700	.0100	-----	-----	
18,800	94,000	.0950	.0250	-----	-----	Tensile strength.
18,980	94,900	.1300	.0350	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	94,900
Elastic limit per square inch of original section.....	do...	52,000
Elongation per inch after rupture.....	inch..	0.2350
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do...	.155
Reduction in area after rupture, per centum of original section.....		51.9
Position of rupture.....	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	" .34", ".13	

No. 2295.

Marks, $^{32}T_{H_{24}}$
 T_2

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000700	.000200	0.	.....	
5,000	25,000	.000900	.000200	0.	.....	
6,000	30,000	.001100	.000200	0.	.....	
7,000	35,000	.001250	.000150	0.	.....	
8,000	40,000	.001400	.000150	0.	.....	
9,000	45,000	.001550	.000150	0.	.....	
10,000	50,000	.001700	.000150	0.		Elastic limit.
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001950	.000200	.....	.....	
10,600	53,000	.002300	.000350	.....	.....	
10,800	54,000	.003100	.000800	.....	.....	
11,000	55,000	.004150	.001050	.....	.....	
11,200	56,000	.005300	.001150	.....	.....	
11,400	57,000	.006300	.001000	.....	.....	
11,600	58,000	.007300	.001000	.....	.....	
11,800	59,000	.007900	.001600	.....	.....	
12,000	60,000	.008850	.001950			Tensile strength.
12,400	62,000	.010150	.001300	.....	.....	
12,800	64,000	.012050	.001900	.....	.....	
13,200	66,000	.014050	.002000	.....	.....	
13,600	68,000	.015850	.001800	.....	.....	
14,000	70,000	.017900	.002050	.....	.....	
14,400	72,000	.019900	.002000	.....	.....	
14,800	74,000	.021850	.001950	.....	.....	
15,200	76,000	.024600	.002750	.....	.....	
15,600	78,000	.027650	.003050	.....	.....	
16,000	80,000	.030650	.003000			Tensile strength.
16,400	82,000	.034000	.003350	.....	.....	
16,800	84,000	.037400	.003400	.....	.....	
17,200	86,000	.042500	.005100	.....	.....	
17,600	88,000	.047500	.005000	.....	.....	
18,000	90,000	.053750	.006250	.....	.....	
18,400	92,000	.0600	.006250	.....	.....	
18,800	94,000	.0800	.0200	.....	.....	
19,180	95,900	.1150	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	95,900
Elastic limit per square inch of original section.....	do...	51,000
Elongation per inch after rupture.....	inch..	0.1400
Elongation per inch under strain at elastic limit.....	do...	.001750
Reduction in diameter at point of rupture.....	do...	.045
Reduction in area after rupture, per centum of original section.....		16.9
Position of rupture.....	".80 from neck	
Character of broken surface, granular; small crack at circumference; opened cracks in surface of stem		
Elongation of inch sections.....	".19*, ".09	

No. 2296.

Marks, $^{32}T H_{24}$
 T_3

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.001000	.000250	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001500	.000200	0.	.....	
10,000	50,000	.001700	.000200	0.		Elastic limit.
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001800	.000050	.....	.....	
10,600	53,000	.002600	.000800	.....	.....	
10,800	54,000	.004000	.001400	.....	.....	
11,000	55,000	.005350	.001350	.....	.....	
11,200	56,000	.006350	.001000	.....	.....	
11,400	57,000	.007300	.000950	.....	.....	
11,600	58,000	.008100	.000800	.....	.....	
11,800	59,000	.009100	.001000	.....	.....	
12,000	60,000	.010000	.000900	.....	.....	
12,400	62,000	.011550	.001550	.....	.....	
12,800	64,000	.013500	.001950	.....	.....	
13,200	66,000	.015100	.001600	.....	.....	
13,600	68,000	.017250	.002150	.....	.....	
14,000	70,000	.019700	.002450	.....	.....	
14,400	72,000	.022250	.002550	.....	.....	
14,800	74,000	.024750	.002500	.....	.....	
15,200	76,000	.027500	.002750	.....	.....	
15,600	78,000	.030500	.003000	.....	.....	
16,000	80,000	.033000	.002500			Tensile strength.
16,400	82,000	.0350	.0020	.....	.....	
16,800	84,000	.0400	.0050	.....	.....	
17,200	86,000	.0500	.0100	.....	.....	
17,600	88,000	.0550	.0050	.....	.....	
18,000	90,000	.0600	.0050	.....	.....	
18,400	92,000	.0750	.0150	.....	.....	
18,600	93,000	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	93,000
Elastic limit per square inch of original section.....	do...	52,000
Elongation per inch after rupture.....	inch..	0.900
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do...	.025
Reduction in area after rupture, per centum of original section.....		9.5
Position of rupture.....	at middle of stem	
Character of broken surface.....	granular	
Fractured at a small crack in the stem which became visible during the test.		
Elongation of inch sections.....	".09", ".09"	

[Additional specimens.]

No. 2523.

Marks, ^{32 T H₂₄}
_{T₄}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000700	.000100	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	.....	.....	
8,000	40,000	.001250	.000200	.....	.....	
9,000	45,000	.001450	.000200	.....	.....	
10,000	50,000	.001650	.000200	.....	.....	
10,200	51,000	.001650	0.	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001700	0.	.....	.....	
10,800	54,000	.001750	.000050	.....	.....	
11,000	55,000	.001800	.000050	.....	.....	
11,200	56,000	.001800	0.	.....	.....	
11,400	57,000	.001850	.000050	.....	.....	
11,600	58,000	.001850	0.			Elastic limit.
11,800	59,000	.001900	.000050	.....	.....	
12,000	60,000	.003300	.001400	.....	.....	
12,400	62,000	.006400	.003100	.....	.....	
12,800	64,000	.009000	.002600	.....	.....	
13,200	66,000	.012500	.003500	.....	.....	
13,600	68,000	.013500	.001000	.....	.....	
14,000	70,000	.016000	.002500	.....	.....	
14,400	72,000	.017900	.001900	.....	.....	
14,800	74,000	.020500	.002600	.....	.....	
15,200	76,000	.022800	.002300	.....	.....	
15,600	78,000	.026000	.003200	.....	.....	
16,000	80,000	.029350	.003350	.....	.....	
16,400	82,000	.032500	.003150	.....	.....	
16,800	84,000	.036200	.003700	.....	.....	
17,200	86,000	.040900	.004700	.....	.....	
17,600	88,000	.047000	.006100	.....	.....	
18,000	90,000	.054500	.007500			Tensile strength.
18,400	92,000	.0600	.0055	.....	.....	
18,800	94,000	.0800	.0200	.....	.....	
19,020	95,100	.1150	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	95,100
Elastic limit per square inch of original section.....	do...	59,000
Elongation per inch after rupture.....	inch..	0.2400
Elongation per inch under strain at elastic limit.....	do...	.001900
Reduction in diameter at point of rupture.....	do...	.025
Reduction in area after rupture, per centum of original section.....	.....	9.5
Position of rupture.....	".65 from neck	
Character of broken surface.....	fine, silky	
Elongation of inch sections.....	".11, ".37"	

No. 2524.

Marks, $^{32}T H_{24}$ Diameter, T_5 .505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000400	.000200	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	0.	.....	
8,000	40,000	.001250	.000200	0.	.....	
9,000	45,000	.001500	.000250	.....	.....	
10,000	50,000	.001650	.000150	.....	.....	
10,200	51,000	.001650	0.	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001850	.000100	.....	.....	
11,000	55,000	.001850	0.			Elastic limit.
11,200	56,000	.001950	.000100	.....	.....	
11,400	57,000	.006200	.004250	.....	.....	
11,600	58,000	.007100	.000900	.....	.....	
11,800	59,000	.008100	.001000	.....	.....	
12,000	60,000	.008600	.000700	.....	.....	
12,400	62,000	.010650	.002050	.....	.....	
12,800	64,000	.012500	.001850	.....	.....	
13,200	66,000	.014350	.001850	.....	.....	
13,600	68,000	.016300	.001950	.....	.....	
14,000	70,000	.018500	.002200	.....	.....	
14,400	72,000	.020600	.002100	.....	.....	
14,800	74,000	.022750	.002150	.....	.....	
15,200	76,000	.025400	.002650	.....	.....	
15,600	78,000	.028150	.002750	.....	.....	
16,000	80,000	.031400	.003250	.....	.....	
16,400	82,000	.034800	.003400	.....	.....	
16,800	84,000	.038750	.003950	.....	.....	
17,200	86,000	.043500	.004750	.....	.....	
17,600	88,000	.049000	.005500	.....	.....	
18,000	90,000	.057300	.008300	.....	.....	
18,400	92,000	.0650	.0077	.....	.....	
18,800	94,000	.0850	.0200	.....	.....	
19,100	95,800	.1300	.0450			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	95,800
Elastic limit per square inch of original section.....	do..	56,000
Elongation per inch after rupture.....	inch..	0.2600
Elongation per inch under strain at elastic limit.....	do..	.001950
Reduction in diameter at point of rupture.....	do..	.175
Reduction in area after rupture, per centum of original section.....		57.2
Position of rupture.....	at middle of stem	
Character of broken surface.....	fine, silky	
Elongation of inch sections.....	".27", ".25"	

H. Ex. 31—27

No. 2525.

Marks, $^{32}T H_{24}$
 T_6

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000650	.000100	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001400	.000150	.....	.....	
10,000	50,000	.001650	.000250	.....	.....	
10,200	51,000	.001650	0.	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001800	.000050	.....	.....	
11,000	55,000	.001800	0.			Elastic limit.
11,200	56,000	.001900	.000100	.....	.....	
11,400	57,000	.002650	.000750	.....	.....	
11,600	58,000	.005150	.002500	.....	.....	
11,800	59,000	.006350	.001200	.....	.....	
12,000	60,000	.007000	.000650	.....	.....	
12,400	62,000	.009350	.002350	.....	.....	
12,800	64,000	.011500	.002150	.....	.....	
13,200	66,000	.013500	.002000	.....	.....	
13,600	68,000	.015100	.002600	.....	.....	
14,000	70,000	.017500	.002400	.....	.....	
14,400	72,000	.019900	.002400	.....	.....	
14,800	74,000	.022000	.002100	.....	.....	
15,200	76,000	.024800	.002800	.....	.....	
15,600	78,000	.027900	.003100	.....	.....	
16,000	80,000	.031000	.003100			Tensile strength.
16,400	82,000	.034700	.003700	.....	.....	
16,800	84,000	.038750	.004050	.....	.....	
17,200	86,000	.043500	.004750	.....	.....	
17,600	88,000	.049350	.005850	.....	.....	
18,000	90,000	.057500	.008150	.....	.....	
18,400	92,000	.0750	.0175	.....	.....	
18,800	94,000	.0900	.0150	.....	.....	
19,040	95,200	.1400	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	95,200
Elastic limit per square inch of original section.....	do...	56,000
Elongation per inch after rupture	inch..	0.2500
Elongation per inch under strain at elastic limit.....	do...	.001900
Reduction in diameter at point of rupture	do...	.175
Reduction in area after rupture, per centum of original section		57.2
Position of rupture.....	1 inch from neck	
Character of broken surface.....	fine, silky	
Elongation of inch sections.....	".34", ".16	

No. 2463.

Marks, ³²T H₂₅Diameter, ^{T₁} .505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000300	.000150	0.	-----	
3,000	15,000	.000450	.000150	0.	-----	
4,000	20,000	.000600	.000150	0.	-----	
5,000	25,000	.000750	.000150	0.	-----	
6,000	30,000	.000950	.000200	0.	-----	
7,000	35,000	.001150	.000200	-----	-----	
8,000	40,000	.001300	.000150	-----	-----	
9,000	45,000	.001450	.000150	-----	-----	
10,000	50,000	.001600	.000150	-----	-----	Elastic limit.
10,200	51,000	.001650	.000050	-----	-----	
10,400	52,000	.001700	.000050	-----	-----	
10,600	53,000	.001750	.000050	-----	-----	
10,800	54,000	.001850	.000100	-----	-----	
11,000	55,000	.002400	.000550	-----	-----	
11,200	56,000	.003600	.001200	-----	-----	
11,400	57,000	.004500	.000900	-----	-----	
11,600	58,000	.005250	.000750	-----	-----	
11,800	59,000	.006100	.000850	-----	-----	
12,000	60,000	.007050	.000950	-----	-----	
12,400	62,000	.009000	.001950	-----	-----	
12,800	64,000	.010600	.001600	-----	-----	
13,200	66,000	.012250	.001650	-----	-----	
13,600	68,000	.014050	.001800	-----	-----	
14,000	70,000	.015850	.001800	-----	-----	
14,400	72,000	.017950	.002100	-----	-----	
14,800	74,000	.020000	.002050	-----	-----	
15,200	76,000	.022200	.002200	-----	-----	
15,600	78,000	.025000	.002800	-----	-----	
16,000	80,000	.027300	.002300	-----	-----	
16,400	82,000	.030100	.002800	-----	-----	
16,800	84,000	.033500	.003400	-----	-----	
17,200	86,000	.037000	.003500	-----	-----	
17,600	88,000	.041050	.004050	-----	-----	
18,000	90,000	.046000	.004950	-----	-----	
18,400	92,000	.052000	.006000	-----	-----	
18,800	94,000	.0550	.0030	-----	-----	
19,200	96,000	.0650	.0100	-----	-----	
19,600	98,000	.0900	.0250	-----	-----	
19,680	98,400	.1050	.0150	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	98,400
Elastic limit per square inch of original section	do. .	54,000
Elongation per inch after rupture.....	inch..	0.1100
Elongation per inch under strain at elastic limit	do. .	.001850
Reduction in diameter at point of rupture.....	do. .	.045
Reduction in area after rupture, per centum of original section.....		16.9
Position of rupture.....		".70 from neck
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections.....		".14*, ".08

No. 2464.

Marks, ^{32 T H₂₅}
_{T₂}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000250	.000150	0.	-----	
3,000	15,000	.000400	.000150	0.	-----	
4,000	20,000	.000600	.000200	0.	-----	
5,000	25,000	.000800	.000200	0.	-----	
6,000	30,000	.000950	.000150	0.	-----	
7,000	35,000	.001150	.000200	-----	-----	
8,000	40,000	.001350	.000200	-----	-----	
9,000	45,000	.001550	.000200	-----	-----	
10,000	50,000	.001750	.000200	-----	-----	Elastic limit.
10,200	51,000	.001800	.000050	-----	-----	
10,400	52,000	.001900	.000100	-----	-----	
10,600	53,000	.002250	.000350	-----	-----	
10,800	54,000	.003100	.000850	-----	-----	
11,000	55,000	.004350	.001250	-----	-----	
11,200	56,000	.005400	.001050	-----	-----	
11,400	57,000	.006400	.001000	-----	-----	
11,600	58,000	.007400	.001000	-----	-----	
11,800	59,000	.008100	.000700	-----	-----	
12,000	60,000	.009000	.000900	-----	-----	
12,400	62,000	.010750	.001750	-----	-----	
12,800	64,000	.012500	.001750	-----	-----	
13,200	66,000	.014350	.001850	-----	-----	
13,600	68,000	.016250	.001900	-----	-----	
14,000	70,000	.018200	.001950	-----	-----	
14,400	72,000	.020250	.002050	-----	-----	
14,800	74,000	.022500	.002250	-----	-----	
15,200	76,000	.025000	.002500	-----	-----	
15,600	78,000	.028000	.003000	-----	-----	
16,000	80,000	.031000	.003000	-----	-----	Tensile strength.
16,400	82,000	.034500	.003500	-----	-----	
16,800	84,000	.037700	.003200	-----	-----	
17,200	86,000	.042000	.004300	-----	-----	
17,600	88,000	.046500	.004500	-----	-----	
18,000	90,000	.052500	.006000	-----	-----	
18,400	92,000	.0550	.0025	-----	-----	
18,800	94,000	.0650	.0100	-----	-----	
19,200	96,000	.0900	.0250	-----	-----	
19,350	96,750	.1350	.0450	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	96,750
Elastic limit per square inch of original section	do...	52,000
Elongation per inch after rupture	inch..	0.1650
Elongation per inch under strain at elastic limit.....	do...	.001900
Reduction in diameter at point of rupture	do...	.065
Reduction in area after rupture, per centum of original section		23.9
Position of rupture	".90 from neck	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	".21", ".12	

No. 2465.

Marks, ^{32 T H₂₅}_{T₃}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
.200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001050	.000150	.....	.....	
8,000	40,000	.001200	.000150	.....	.....	
9,000	45,000	.001350	.000150	.....	.....	
10,000	50,000	.001550	.000200			Elastic limit.
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.001700	0.	.....	.....	
11,000	55,000	.003350	.001650	.....	.....	
11,200	56,000	.004750	.001400	.....	.....	
11,400	57,000	.005900	.001150	.....	.....	
11,600	58,000	.006550	.000650	.....	.....	
11,800	59,000	.007500	.000950	.....	.....	
12,000	60,000	.008200	.000700			Tensile strength.
12,400	62,000	.010000	.001800	.....	.....	
12,800	64,000	.012000	.002000	.....	.....	
13,200	66,000	.013000	.001000	.....	.....	
13,600	68,000	.014550	.001550	.....	.....	
14,000	70,000	.017250	.002700	.....	.....	
14,400	72,000	.020000	.002750	.....	.....	
14,800	74,000	.022400	.002400	.....	.....	
15,200	76,000	.025000	.002600	.....	.....	
15,600	78,000	.027500	.002500	.....	.....	
16,000	80,000	.030350	.002850			Tensile strength.
16,400	82,000	.034250	.003900	.....	.....	
16,800	84,000	.037250	.003000	.....	.....	
17,200	86,000	.042000	.004750	.....	.....	
17,600	88,000	.047500	.005500	.....	.....	
18,000	90,000	.053750	.006250	.....	.....	
18,400	92,000	.0600	.006250	.....	.....	
18,800	94,000	.0750	.0150	.....	.....	
19,200	96,000	.1050	.0300	.....	.....	
19,240	96,200	.1350	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	96,200
Elastic limit per square inch of original section	do...	54,000
Elongation per inch after rupture	inch..	0.1900
Elongation per inch under strain at elastic limit	do...	.001700
Reduction in diameter at point of rupture	do...	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture	1".10 from neck	
Character of broken surface	silky	
Elongation of inch sections	".23*, ".15	

[Additional specimens.]

No. 2704.

Marks, ^{32 T H₂₅}
 _{T₄}
Diameter, ".506.
Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001100	.000200	0.	.....	
8,000	40,000	.001300	.000200	0.	.....	
9,000	45,000	.001450	.000150	.....	.....	
10,000	50,000	.001650	.000200			Elastic limit.
10,200	51,000	.001650	0.	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001750	0.	.....	.....	
11,000	55,000	.001800	.000050	.....	.....	
11,200	56,000	.002250	.000450	.....	.....	
11,400	57,000	.004200	.001950	.....	.....	
11,600	58,000	.005400	.001200	.....	.....	
11,800	59,000	.006500	.001100	.....	.....	
12,000	60,000	.007700	.001200			Tensile strength.
12,400	62,000	.009750	.002050	.....	.....	
12,800	64,000	.011500	.001750	.....	.....	
13,200	66,000	.013000	.001500	.....	.....	
13,600	68,000	.015400	.002400	.....	.....	
14,000	70,000	.017000	.001600	.....	.....	
14,400	72,000	.019250	.002250	.....	.....	
14,800	74,000	.021500	.002250	.....	.....	
15,200	76,000	.024000	.002500	.....	.....	
15,600	78,000	.027000	.003000	.....	.....	
16,000	80,000	.029500	.002500			Tensile strength.
16,400	82,000	.032550	.003050	.....	.....	
16,800	84,000	.036100	.003550	.....	.....	
17,200	86,000	.040000	.003900	.....	.....	
17,600	88,000	.045000	.005000	.....	.....	
18,000	90,000	.051500	.006500	.....	.....	
18,400	92,000	.0550	.0035	.....	.....	
18,800	94,000	.0650	.0100	.....	.....	
19,200	96,000	.0850	.0200	.....	.....	
19,390	96,950	.1250	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	96,950
Elastic limit per square inch of original section	do...	55,000
Elongation per inch after rupture	inch..	0.2250
Elongation per inch under strain at elastic limit	do...	.001800
Reduction in diameter at point of rupture	do...	.155
Reduction in area after rupture, per centum of original section	do...	51.9
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections	".34", ".11	

No. 2705.

Marks, ^{32 T H₂₅}
_{T₅}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000255	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001450	.000250	.....	.....	
10,000	50,000	.001600	.000150			Elastic limit.
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001800	.000100	.....	.....	
10,800	54,000	.002500	.000700	.....	.....	
11,000	55,000	.003500	.001000	.....	.....	
11,200	56,000	.004150	.000650	.....	.....	
11,400	57,000	.005350	.001200	.....	.....	
11,600	58,000	.006500	.001150	.....	.....	
11,800	59,000	.007350	.000850	.....	.....	
12,000	60,000	.008400	.001050	.....	.....	
12,400	62,000	.010000	.001600	.....	.....	
12,800	64,000	.012000	.002000	.....	.....	
13,200	66,000	.013750	.001750	.....	.....	
13,600	68,000	.015750	.002000	.....	.....	
14,000	70,000	.017750	.002000	.....	.....	
14,400	72,000	.020000	.002250	.....	.....	
14,800	74,000	.022250	.002250	.....	.....	
15,200	76,000	.025000	.002750	.....	.....	
15,600	78,000	.027250	.002250	.....	.....	
16,000	80,000	.030000	.002750	.....	.....	
16,400	82,000	.033900	.003900	.....	.....	
16,800	84,000	.037500	.003600	.....	.....	
17,200	86,000	.041250	.003750	.....	.....	
17,600	88,000	.047050	.005800	.....	.....	
18,000	90,000	.054000	.006950	.....	.....	
18,400	92,000	.0600	.0060	.....	.....	
18,800	94,000	.0650	.0050	.....	.....	
19,200	96,000	.0950	.0300			Tensile strength.
19,300	96,500	.1200	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	96,500
Elastic limit per square inch of original section.....	do....	53,000
Elongation per inch after rupture.....	inch...	0.1950
Elongation per inch under strain at elastic limit	do....	.001800
Reduction in diameter at point of rupture.....	do....	.105
Reduction in area after rupture, per centum of original section.....		37.1
Position of rupture	".65 from neck	
Character of broken surface	silky	
Elongation of inch sections.....	".29*, ".10	

No. 2706.

Marks, ³² T H₂₅
T₆

Diameter, ".506.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000800	.000100	0.	.....	
7,000	35,000	.001000	.000200	0.	.....	
8,000	40,000	.001150	.000150	0.	.....	
9,000	45,000	.001300	.000150			Elastic limit.
10,000	50,000	.001550	.000250	.....	.....	
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.001800	.000100	.....	.....	
11,000	55,000	.001900	.000100	.....	.....	
11,200	56,000	.002550	.000650	.....	.....	
11,400	57,000	.003200	.000650	.....	.....	
11,600	58,000	.004500	.001300	.....	.....	
11,800	59,000	.005950	.001450	.....	.....	
12,000	60,000	.007000	.001050	.....	.....	
12,400	62,000	.008750	.001750	.....	.....	
12,800	64,000	.010500	.001750	.....	.....	
13,200	66,000	.012300	.001800	.....	.....	
13,600	68,000	.014000	.001700	.....	.....	
14,000	70,000	.016000	.002000	.....	.....	
14,400	72,000	.018050	.002050	.....	.....	
14,800	74,000	.020200	.002150	.....	.....	
15,200	76,000	.022500	.002300	.....	.....	
15,600	78,000	.025250	.002750	.....	.....	
16,000	80,000	.028050	.002800			Tensile strength.
16,400	82,000	.031000	.002950	.....	.....	
16,800	84,000	.033750	.002750	.....	.....	
17,200	86,000	.037500	.003750	.....	.....	
17,600	88,000	.042000	.004500	.....	.....	
18,000	90,000	.046750	.004750	.....	.....	
18,400	92,000	.053500	.006750	.....	.....	
18,800	94,000	.0600	.0065	.....	.....	
19,200	96,000	.0700	.0100	.....	.....	
19,600	98,000	.0950	.0250	.....	.....	
19,650	98,250	.1200	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	98,250
Elastic limit per square inch of original section	do...	55,000
Elongation per inch after rupture	inch..	0.1350
Elongation per inch under strain at elastic limit	do...	.001900
Reduction in diameter at point of rupture	do...	.086
Reduction in area after rupture, per centum of original section		30.7
Position of rupture	"	.60 from neck
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	"	.19*, ".08

SPECIMENS FROM STEEL BREECH BLOCKS

FOR

3".2 STEEL B. L. RIFLES.

TABLES FROM STEEL BREACH RECORDS FOR 3" STEEL RIFLE

No. 2051

Mark, 2 1/2 R.

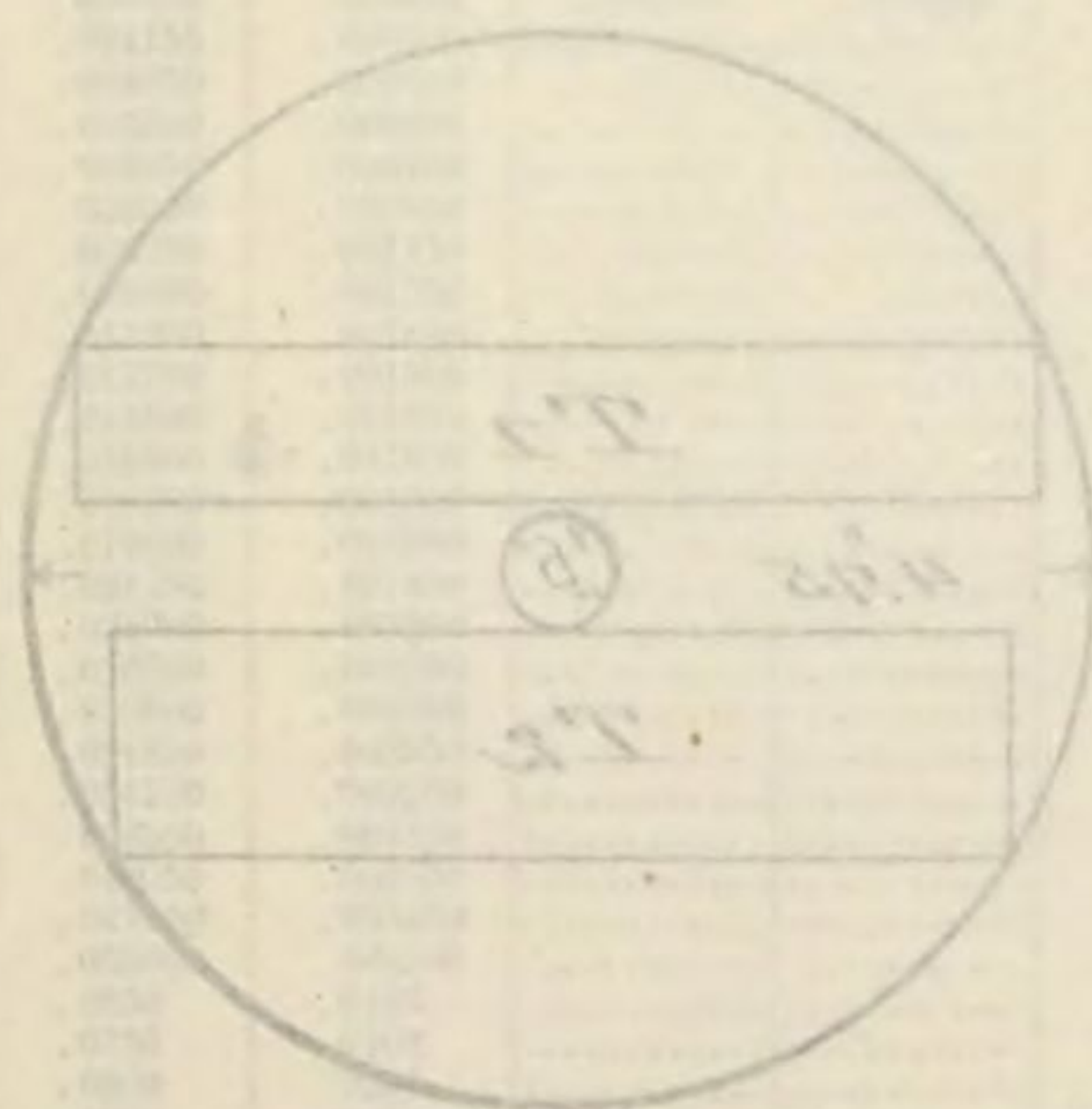
Diameter, 3.501.

Sectional area, 3.90 square inch.

Applied loads

Breach Block 3.5 Rifle

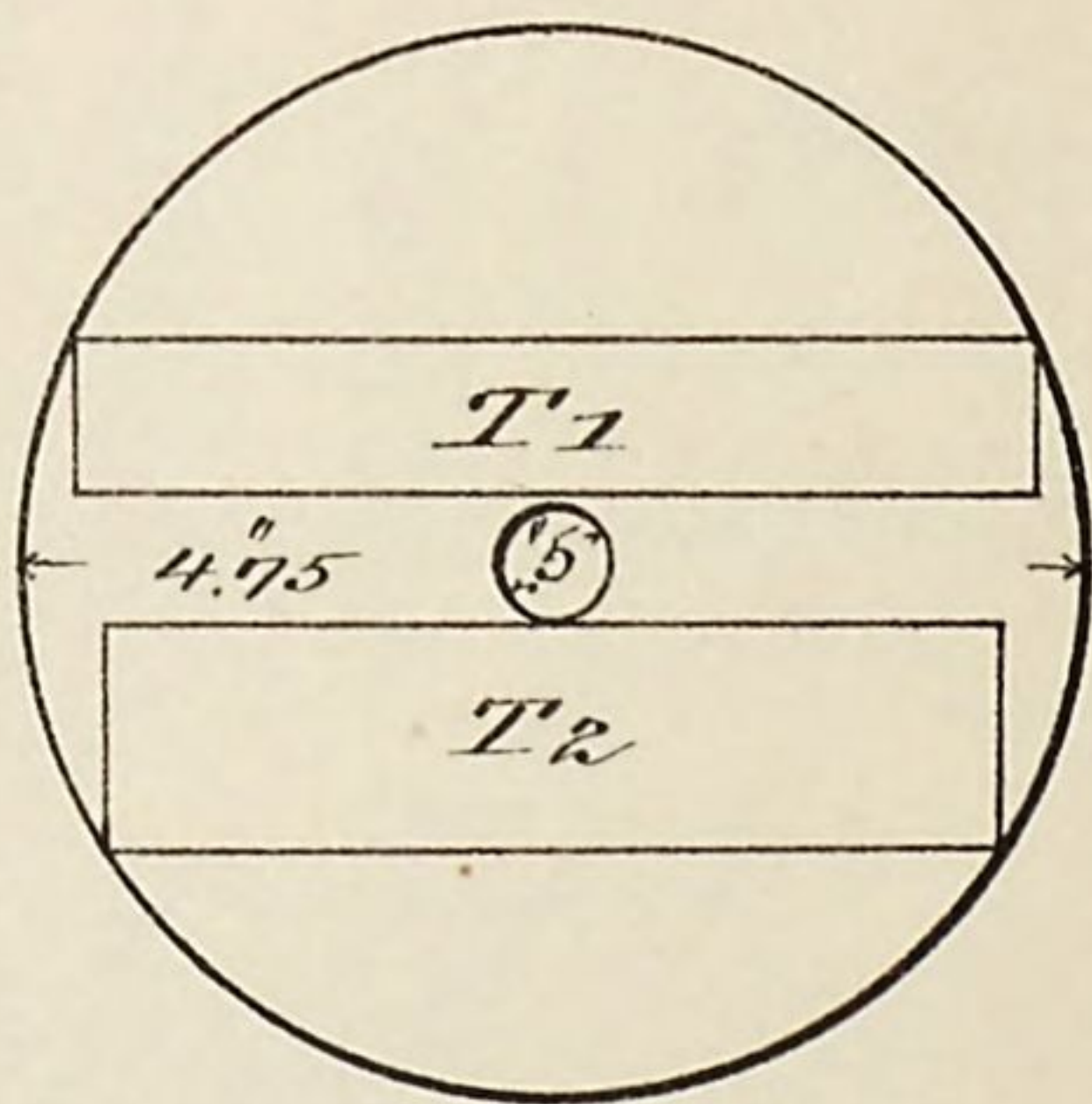
General description of specimens from which positions were taken.



H Ex 31 49 2

Breech Block 3.2" Rifle

*General drawing showing
positions from whence
specimens were taken.*



H Ex 3/ 49 2

SPECIMENS FROM STEEL BREECH BLOCKS FOR 3".2 STEEL B. L.
RIFLES.

No. 2054.

Marks, ^{32 B B₁}_{T₁}

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	0.	.....	
2,000	10,000	.000150	.000100	0.	.....	
3,000	15,000	.000350	.000200	0.	.....	
4,000	20,000	.000600	.000250	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001000	.000200	.000050	.000050	
7,000	35,000	.001150	.000150	.000050	0.	
8,000	40,000	.001300	.000150	.000050	0.	
9,000	45,000	.001450	.000150	.000050	0.	
9,200	46,000	.001500	.000050			Elastic limit.
9,400	47,000	.001550	.000050	.....	.....	
9,600	48,000	.001600	.000050	.....	.....	
9,800	49,000	.001650	.000050	.....	.....	
10,000	50,000	.001750	.000100	.000050	0.	
10,200	51,000	.001900	.000150	.....	.....	
10,400	52,000	.002200	.000300	.....	.....	
10,600	53,000	.002550	.000350	.....	.....	
10,800	54,000	.003050	.000500	.....	.....	
11,000	55,000	.003650	.000600	.001700	.001650	
11,200	56,000	.004150	.000500	.....	.....	
11,400	57,000	.004650	.000500	.....	.....	
11,600	58,000	.005300	.000650	.....	.....	
11,800	59,000	.006050	.000750	.....	.....	
12,000	60,000	.006900	.000850	.....	.....	
12,400	62,000	.008250	.001350	.....	.....	
12,800	64,000	.009800	.001550	.....	.....	
13,200	66,000	.011200	.001400	.....	.....	
13,600	68,000	.012700	.001500	.....	.....	
14,000	70,000	.014500	.001800			Tensile strength.
14,400	72,000	.016100	.001600	.....	.....	
14,800	74,000	.018000	.001900	.....	.....	
15,200	76,000	.019900	.001900	.....	.....	
15,600	78,000	.021750	.001850	.....	.....	
16,000	80,000	.024000	.002250	.....	.....	
16,400	82,000	.026500	.002500	.....	.....	
16,800	84,000	.029000	.002500	.....	.....	
17,200	86,000	.031850	.002850	.....	.....	
17,600	88,000	.034350	.002500	.....	.....	
18,000	90,000	.038500	.004150			Tensile strength.
18,400	92,000	.042050	.003550	.....	.....	
18,800	94,000	.047500	.005450	.....	.....	
19,200	96,000	.053000	.005500	.....	.....	
19,600	98,000	.0650	.0120	.....	.....	
20,000	100,000	.0750	.0100	.....	.....	
20,400	102,000	.0950	.0200	.....	.....	
20,520	102,600	.1300	.0350	.....	.....	

General summary.

Specific gravity.....	7.8671
Tensile strength per square inch of original section.....pounds..	102,600
Elastic limit per square inch of original section.....do....	50,000
Elongation per inch after rupture.....inch..	0.1550
Elongation per inch under strain at elastic limit.....do....	.001750
Reduction in diameter at point of rupture.....do....	.074
Reduction in area after rupture, per centum of original section.....	27.4
Position of rupture.....	".3 from neck
Character of broken surface.....	granular; dull center
Elongation of inch sections.....	".22*, ".09

No. 584.

Marks, ^{32 B B₁}_{T₂}

Length, 4'' .00.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000500	.000200	0.	.....	
10,000	20,000	.000600	.000100	0.	.....	
12,500	25,000	.000750	.000150	0.	.....	
15,000	30,000	.001000	.000250	0.	.....	
17,500	35,000	.001150	.000150	0.	.....	
20,000	40,000	.001300	.000150	0.	.....	
22,500	45,000	.001500	.000200	0.	.....	
25,000	50,000	.001700	.000200	0.	.....	
25,500	51,000	.001750	.000050	.....	.....	
26,000	52,000	.001750	0.	.....	.....	
26,500	53,000	.001750	0.	.....	.....	
27,000	54,000	.001800	.000050	.....	.....	
27,500	55,000	.001800	0.	0.	.....	
28,000	56,000	.001900	.000100			Elastic limit.
28,500	57,000	.002000	.000100	.....	.....	
29,000	58,000	.002200	.000200	.....	.....	
29,500	59,000	.002500	.000300	.....	.....	
30,000	60,000	.003000	.000500	.001100	.001100	
30,500	61,000	.003500	.000500	.....	.....	
31,000	62,000	.004000	.000500	.....	.....	
31,500	63,000	.004500	.000500	.....	.....	
32,000	64,000	.005000	.000500	.....	.....	
32,500	65,000	.005500	.000500	.001800	.000700	
33,000	66,000	.006100	.000600			Ultimate strength.
33,500	67,000	.006500	.000400	.....	.....	
34,000	68,000	.007250	.000750	.....	.....	
34,500	69,000	.007800	.000550	.....	.....	
35,000	70,000	.008500	.000700	.006000	.004200	
53,100	106,200	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 57,000
 Compression per inch under stress at elastic limit.....inch.. 0.002000
 Ultimate strength per square inch of original sectionpounds.. 106,200
 Manner of failure.....triple flexure

No. 2044.

Marks, $^{32}B\ B_2$
 T_1

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000200	.000100	0.	-----	
3,000	15,000	.000350	.000150	0.	-----	
4,000	20,000	.000550	.000200	0.	-----	
5,000	25,000	.000700	.000150	0.	-----	
6,000	30,000	.000850	.000150	0.	-----	
7,000	35,000	.001050	.000200	0.	-----	
8,000	40,000	.001150	.000100	0.	-----	
9,000	45,000	.001350	.000200	0.	-----	
9,200	46,000	.001400	.000050	-----	-----	
9,400	47,000	.001450	.000050	-----	-----	
9,600	48,000	.001500	.000050	-----	-----	
9,800	49,000	.001550	.000050	-----	-----	
10,000	50,000	.001550	0.	0.	-----	
10,200	51,000	.001600	.000050	-----	-----	
10,400	52,000	.001700	.000100	-----	-----	
10,600	53,000	.001750	.000050	-----	-----	
10,800	54,000	.001850	.000100	-----	-----	Elastic limit.
11,000	55,000	.002200	.000350	.000450	.000450	
11,200	56,000	.002750	.000550	-----	-----	
11,400	57,000	.003100	.000350	-----	-----	
11,600	58,000	.003850	.000750	-----	-----	
11,800	59,000	.004350	.000500	-----	-----	
12,000	60,000	.005900	.001550	-----	-----	
12,400	62,000	.006750	.000850	-----	-----	
12,800	64,000	.008200	.001450	-----	-----	
13,200	66,000	.009750	.001550	-----	-----	
13,600	68,000	.011200	.001450	-----	-----	
14,000	70,000	.013100	.001900	-----	-----	
14,400	72,000	.014900	.001800	-----	-----	
14,800	74,000	.016600	.001700	-----	-----	
15,200	76,000	.018750	.002150	-----	-----	
15,600	78,000	.021000	.002250	-----	-----	
16,000	80,000	.023000	.002000	-----	-----	
16,400	82,000	.025350	.002350	-----	-----	
16,800	84,000	.028200	.002850	-----	-----	
17,200	86,000	.031000	.002800	-----	-----	
17,600	88,000	.033650	.002650	-----	-----	
18,000	90,000	.037750	.004100	-----	-----	
18,400	92,000	.042000	.004250	-----	-----	
18,800	94,000	.046850	.004850	-----	-----	
19,200	96,000	.053700	.006850	-----	-----	
19,600	98,000	.062200	.008500	-----	-----	
20,000	100,000	.0750	.0128	-----	-----	
20,400	102,000	.1050	.0300	-----	-----	Tensile strength.

General summary.

Specific gravity.....	7.8661
Tensile strength per square inch of original section.....	pounds... 102,000
Elastic limit per square inch of original section.....	do... 54,000
Elongation per inch after rupture.....	inch... 0.1700
Elongation per inch under strain at elastic limit.....	do... .001850
Reduction in diameter at point of rupture.....	do... .095
Reduction in area after rupture, per centum of original section.....	34.0
Position of rupture.....	".45 from neck
Character of broken surface.....	granular; dull center
Elongation of inch sections.....	".25*, ".09

No. 581.

Marks, ^{32 B B₂}
_{T₂}

Length, 4".005.

Diameter, ".797.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000050	.000050	0.	.....	
5,000	10,000	.000250	.000200	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000700	.000150	0.	.....	
15,000	30,000	.000850	.000150	0.	.....	
17,500	35,000	.001050	.000200	0.	.....	
20,000	40,000	.001250	.000200	0.	.....	
22,500	45,000	.001500	.000250	0.	.....	
23,000	46,000	.001500	0.	.....	.....	
23,500	47,000	.001550	.000050	.....	.....	
24,000	48,000	.001600	.000050	.....	.....	
24,500	49,000	.001600	0.	.....	.....	
25,000	50,000	.001650	.000050	.000050	.000050	
25,500	51,000	.001650	0.	.....	.....	
26,000	52,000	.001750	.000100	.....	.....	
26,500	53,000	.001750	0.	.....	.....	
27,000	54,000	.001800	.000050			Elastic limit.
27,500	55,000	.002000	.000200	.000250	.000200	
28,000	56,000	.002250	.000250	.....	.....	
28,500	57,000	.002550	.000300	.....	.....	
29,000	58,000	.003100	.000550	.....	.....	
29,500	59,000	.003750	.000650			Ultimate strength.
30,000	60,000	.004500	.000750	.002500	.002250	
54,200	108,400	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 54,000
 Compression per inch under stress at elastic limit.....inch.. 0.001800
 Ultimate strength per square inch of original section.....pounds.. 108,400
 Manner of failure.....triple flexure

No. 2055.

Marks, ³²B B₃
T₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000300	.000100	0.	.....	
4,000	20,000	.000500	.000200	0.	.....	
5,000	25,000	.000700	.000200	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	0.	.....	
8,000	40,000	.001250	.000200	0.	.....	
9,000	45,000	.001450	.000200	0.	.....	
9,200	46,000	.001500	.000050			Elastic limit.
9,400	47,000	.001550	.000050	.....	.....	
9,600	48,000	.001600	.000050	.....	.....	
9,800	49,000	.001600	0.	.....	.....	
10,000	50,000	.001650	.000050	0.	.....	
10,200	51,000	.001750	.000100	.....	.....	
10,400	52,000	.002250	.000500	.....	.....	
10,600	53,000	.003000	.000750	.....	.....	
10,800	54,000	.003650	.000650	.....	.....	
11,000	55,000	.004450	.000800	.002500	.002500	
11,200	56,000	.005100	.000650			
11,400	57,000	.005850	.000750	.....	.....	
11,600	58,000	.006400	.000550	.....	.....	
11,800	59,000	.007300	.000900	.....	.....	
12,000	60,000	.008150	.000850	.....	.....	
12,400	62,000	.009850	.001700	.....	.....	
12,800	64,000	.011200	.001350	.....	.....	
13,200	66,000	.013100	.001900	.....	.....	
13,600	68,000	.014750	.001650	.....	.....	
14,000	70,000	.016750	.002000			Tensile strength.
14,400	72,000	.018600	.001850	.....	.....	
14,800	74,000	.020800	.002200	.....	.....	
15,200	76,000	.023100	.002300	.....	.....	
15,600	78,000	.025600	.002500	.....	.....	
16,000	80,000	.028500	.002900	.....	.....	
16,400	82,000	.031050	.002550	.....	.....	
16,800	84,000	.034800	.003750	.....	.....	
17,200	86,000	.038500	.003700	.....	.....	
17,600	88,500	.042850	.004350	.....	.....	
18,000	90,000	.048250	.005400			
18,400	92,000	.056000	.007700	.....	.....	
18,800	94,000	.0600	.0040	.....	.....	
19,200	96,000	.0750	.0150	.....	.....	
19,520	97,600	.1350	.0600			

General summary.

Specific gravity.....	7,8691
Tensile strength per square inch of original section.....	pounds.. 97,600
Elastic limit per square inch of original section.....	do.. 51,000
Elongation per inch after rupture.....	inch.. 0.1850
Elongation per inch under strain at elastic limit.....	do.. .001750
Reduction in diameter at point of rupture.....	do.. .075
Reduction in area after rupture, per centum of original section.....	27.4
Position of rupture.....	at middle of stem
Character of broken surface.....	granular; dull center
Elongation of inch sections.....	".21*, ".16

No. 585.

Marks, ³²B B₃Length, 4¹¹/₁₆.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	— .000050	— .000050	
12,500	25,000	.000700	.000150	— .000050	0.	
15,000	30,000	.000850	.000150	— .000050	0.	
17,500	35,000	.001000	.000150	— .000050	0.	
20,000	40,000	.001150	.000100	— .000050	0.	
22,500	45,000	.001300	.000150	— .000050	0.	
23,000	46,000	.001300	0.	.....	.....	
23,500	47,000	.001350	.000050	.....	.....	
24,000	48,000	.001450	.000100	.....	.....	
24,500	49,000	.001500	.000050	.....	.....	
25,000	50,000	.001500	0.	— .000050	.....	
25,500	51,000	.001500	0.			Elastic limit.
26,000	52,000	.001600	.000100	.....	.....	
26,500	53,000	.001800	.000200	.....	.....	
27,000	54,000	.002100	.000300	.....	.....	
27,500	55,000	.002400	.000300	.000650	.000700	
28,000	56,000	.002850	.000450	.....	.....	
28,500	57,000	.003450	.000600	.....	.....	
29,000	58,000	.004000	.000550	.....	.....	
29,500	59,000	.004750	.000750	.....	.....	
30,000	60,000	.005250	.000500	.003300	.002650	Ultimate strength.
52,300	104,600	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 52,000
 Compression per inch under stress at elastic limit.....inch.. 0.001600
 Ultimate strength per square inch of original sectionpounds.. 104,600
 Manner of failuretriple flexure

No. 2064.

Marks, ^{32 B B₄}_{T₁}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	-.000050	-.000050	
2,000	10,000	.000200	.000100	-.000050	0.	
3,000	15,000	.000300	.000100	-.000050	0.	
4,000	20,000	.000400	.000100	-.000050	0.	
5,000	25,000	.000600	.000200	-.000050	0.	
6,000	30,000	.000700	.000100	-.000050	0.	
7,000	35,000	.000950	.000250	-.000050	0.	
8,000	40,000	.001100	.000150	-.000050	0.	
9,000	45,000	.001250	.000150	-.000050	0.	
9,200	46,000	.001300	.000050			Elastic limit.
9,400	47,000	.001400	.000100			
9,600	48,000	.001450	.000050			
9,800	49,000	.001450	0.			
10,000	50,000	.001500	.000050	0.		
10,200	51,000	.001550	.000050			
10,400	52,000	.001600	.000050			
10,600	53,000	.001700	.000100			
10,800	54,000	.002000	.000300			
11,000	55,000	.002350	.000350			
11,200	56,000	.002850	.000500			
11,400	57,000	.003450	.000600			
11,600	58,000	.004050	.000600			
11,800	59,000	.004650	.000600			
12,000	60,000	.005350	.000700			
12,400	62,000	.006800	.001450			
12,800	64,000	.008350	.001550			
13,200	66,000	.009350	.001000			
13,600	68,000	.011400	.002050			
14,000	70,000	.013150	.001750			
14,400	72,000	.014900	.001750			
14,800	74,000	.016700	.001800			
15,200	76,000	.018700	.002000			
15,600	78,000	.020700	.002000			
16,000	80,000	.023150	.002450			
16,400	82,000	.026000	.002850			
16,800	84,000	.028500	.002500			
17,200	86,000	.031550	.003050			
17,600	88,000	.034250	.002700			
18,000	90,000	.038500	.004250			
18,400	92,000	.043000	.004500			
18,800	94,000	.047900	.004900			
19,200	96,000	.055100	.007200			
19,600	98,000	.066000	.010900			
20,000	100,000	.1000	.0340			Tensile strength.
20,060	100,300	.1050	.0050			

General summary.

Tensile strength per square inch of original section.....	pounds..	100,300
Elastic limit per square inch of original section.....	do ..	53,000
Elongation per inch after rupture.....	inch..	0.1600
Elongation per inch under strain at elastic limit.....	do....	.001700
Reduction in diameter at point of rupture	do....	.095
Reduction in area after rupture, per centum of original section.....		34
Position of rupture	".2 from middle of stem	
Character of broken surface.....	granular; dull center	
Elongation of inch sections	".20*, ".12	

H. Ex. 31—28

No. 596.

Marks, ^{32 BB₄}
_{T₂}

Length, 4".00

Diameter, ".797.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0	-----	
5,000	10,000	.000250	.000150	0	-----	
7,500	15,000	.000400	.000150	0.	-----	
10,000	20,000	.000550	.000150	— .000050	— .000050	
12,500	25,000	.000700	.000150	— .000050	0.	
15,000	30,000	.000850	.000150	— .000050	0.	
17,500	35,000	.001000	.000150	— .000050	0.	
20,000	40,000	.001150	.000150	— .000050	0.	
22,500	45,000	.001300	.000150	— .000050	0.	
23,000	46,000	.001350	.000050	-----	-----	
23,500	47,000	.001350	0.	-----	-----	
24,000	48,000	.001400	.000050	-----	-----	
24,500	49,000	.001450	.000050	-----	-----	
25,000	50,000	.001500	.000050	— .000050	0.	
25,500	51,000	.001500	0.	-----	-----	
26,000	52,000	.001550	.000050	-----	-----	
26,500	53,000	.001600	.000050	-----	-----	Elastic limit.
27,000	54,000	.001800	.000200	-----	-----	
27,500	55,000	.002150	.000350	.000350	.000400	
28,000	56,000	.002550	.000400	-----	-----	
28,500	57,000	.003050	.000500	-----	-----	
29,000	58,000	.003550	.000500	-----	-----	Ultimate strength.
29,500	59,000	.004250	.000700	-----	-----	
30,000	60,000	.004750	.000500	.002750	.002400	
53,600	107,200	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section.....pounds.. 53,000
 Compression per inch under stress at elastic limit.....inch.. 0.001600
 Ultimate strength per square inch of original section.....pounds.. 107,200
 Manner of failure.....triple flexure

No. 2056.

Marks, ^{32 B B₅}
_{T₁}

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.	-----	
2,000	10,000	.000300	.000100	0.	-----	
3,000	15,000	.000400	.000100	0.	-----	
4,000	20,000	.000600	.000200	0.	-----	
5,000	25,000	.000700	.000100	0.	-----	
6,000	30,000	.000850	.000150	0.	-----	
7,000	35,000	.001050	.000200	0.	-----	
8,000	40,000	.001250	.000200	0.	-----	
9,000	45,000	.001450	.000200	0.	-----	
9,200	46,000	.001500	.000050	-----	-----	
9,400	47,000	.001550	.000050	-----	-----	
9,600	48,000	.001600	.000050	-----	-----	
9,800	49,000	.001650	.000050	-----	-----	
10,000	50,000	.001700	.000050	.000050	.000050	Elastic limit
10,200	51,000	.002100	.000400	-----	-----	
10,400	52,000	.002500	.000400	-----	-----	
10,600	53,000	.003100	.000600	-----	-----	
10,800	54,000	.003600	.000500	-----	-----	
11,000	55,000	.004550	.000950	-----	-----	
11,200	56,000	.005100	.000550	-----	-----	
11,400	57,000	.006100	.001000	-----	-----	
11,600	58,000	.006650	.000550	-----	-----	
11,800	59,000	.007600	.000950	-----	-----	
12,000	60,000	.008250	.000650	-----	-----	
12,400	62,000	.009500	.001250	-----	-----	
12,800	64,000	.011900	.002400	-----	-----	
13,200	66,000	.013000	.001100	-----	-----	
13,600	68,000	.014000	.001000	-----	-----	
14,000	70,000	.015750	.001750	-----	-----	
14,400	72,000	.018000	.002250	-----	-----	
14,800	74,000	.021050	.003050	-----	-----	
15,200	76,000	.023250	.002200	-----	-----	
15,600	78,000	.025500	.002250	-----	-----	
16,000	80,000	.028550	.003050	-----	-----	
16,400	82,000	.031750	.003200	-----	-----	
16,800	84,000	.034700	.002950	-----	-----	
17,200	86,000	.038500	.003800	-----	-----	
17,600	88,000	.042400	.003900	-----	-----	
18,000	90,000	.048500	.006100	-----	-----	
18,400	92,000	.055250	.006750	-----	-----	
18,800	94,000	.064000	.008750	-----	-----	
19,200	96,000	.0700	.0060	-----	-----	
19,560	97,800	.1250	.0550	-----	-----	Tensile strength.

General summary.

Specific gravity.....	7.8555
Tensile strength per square inch of original section.....	pounds.. 97,800
Elastic limit per square inch of original section.....	do... 50,000
Elongation per inch after rupture.....	inch.. 0.1850
Elongation per inch under strain at elastic limit.....	do... .001700
Reduction in diameter at point of rupture.....	do... .085
Reduction in area after rupture, per centum of original section.....	30.7
Position of rupture.....	$\frac{1}{2}$ inch from neck
Character of broken surface.....	granular; dull center
Elongation of inch sections.....	".24", ".13

No. 586.

Marks, ^{32 B B₅}_{T₂}
Length, 3''¹¹.998.
Diameter, ''¹¹.799.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	0.	-----	— .000100	— .000100	
5,000	10,000	.000150	.000150	— .000100	0.	
7,500	15,000	.000300	.000150	— .000100	0.	
10,000	20,000	.000500	.000200	— .000100	0.	
12,500	25,000	.000650	.000150	— .000100	0.	
15,000	30,000	.000850	.000200	— .000100	0.	
17,500	35,000	.001000	.000150	— .000050	— .000050	
20,000	40,000	.001250	.000250	— .000050	0.	
22,500	45,000	.001450	.000200	0.	.000050	
23,000	46,000	.001500	.000050	-----	-----	
23,500	47,000	.001500	0.	-----	-----	
24,000	48,000	.001550	.000050	-----	-----	
24,500	49,000	.001600	.000050	-----	-----	
25,000	50,000	.001650	.000050	.000100	.000100	
25,500	51,000	.001750	.000100	-----	-----	
26,000	52,000	.001800	.000050	-----	-----	Elastic limit.
26,500	53,000	.001950	.000150	-----	-----	
27,000	54,000	.002250	.000300	-----	-----	
27,500	55,000	.002650	.000400	.000900	.000800	
28,000	56,000	.003150	.000500	-----	-----	
28,500	57,000	.003650	.000500	-----	-----	Ultimate strength.
29,000	58,000	.004300	.000650	-----	-----	
29,500	59,000	.005150	.000860	-----	-----	
30,000	60,000	.005800	.000650	.003750	.002850	
54,100	108,200	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section	pounds..	52,000
Compression per inch under stress at elastic limit	inch..	0.001800
Ultimate strength per square inch of original section	pounds..	108,200
Manner of failure	triple flexure	

No. 2057.

Marks, ^{32 B B₆}_{T₁}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>ounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	— .000050	— .000050	
2,000	10,000	.000200	.000150	— .000050	0.	
3,000	15,000	.000350	.000150	— .000050	0.	
4,000	20,000	.000550	.000200	— .000050	0.	
5,000	25,000	.000700	.000150	— .000050	0.	
6,000	30,000	.000900	.000200	— .000050	0.	
7,000	35,000	.001100	.000200	— .000050	0.	
8,000	40,000	.001300	.000200	— .000050	0.	
9,000	45,000	.001400	.000100	— .000050	0.	
9,200	46,000	.001450	.000050	— .000050	0.	
9,400	47,000	.001450	0.	— .000050	0.	
9,600	48,000	.001500	.000050	— .000050	0.	
9,800	49,000	.001550	.000050	— .000050	0.	
10,000	50,000	.001600	.000050	0.	— .000050	
10,200	51,000	.001650	.000050	— .000050	0.	
10,400	52,000	.001700	.000050	— .000050	0.	
10,600	53,000	.001700	0.	— .000050	0.	
10,800	54,000	.001750	.000050	— .000050	0.	Elastic limit.
11,000	55,000	.001950	.000200	— .000050	0.	
11,200	56,000	.002150	.000200	— .000050	0.	
11,400	57,000	.002550	.000400	— .000050	0.	
11,600	58,000	.002850	.000300	— .000050	0.	
11,800	59,000	.003350	.000500	— .000050	0.	
12,000	60,000	.004050	.000700	— .000050	0.	
12,400	62,000	.005350	.001300	— .000050	0.	
12,800	64,000	.006600	.001250	— .000050	0.	
13,200	66,000	.008050	.001450	— .000050	0.	
13,600	68,000	.009350	.001300	— .000050	0.	
14,000	70,000	.010500	.001150	— .000050	0.	
14,400	72,000	.012100	.001600	— .000050	0.	
14,800	74,000	.013900	.001800	— .000050	0.	
15,200	76,000	.015400	.001500	— .000050	0.	
15,600	78,000	.017100	.001700	— .000050	0.	
16,000	80,000	.019000	.001900	— .000050	0.	
16,400	82,000	.020650	.001650	— .000050	0.	
16,800	84,000	.023050	.002400	— .000050	0.	
17,200	86,000	.025300	.002250	— .000050	0.	
17,600	88,000	.027550	.002250	— .000050	0.	
18,000	90,000	.029900	.002350	— .000050	0.	
18,400	92,000	.032500	.002600	— .000050	0.	
18,800	94,000	.035600	.003100	— .000050	0.	
19,200	96,000	.040000	.004400	— .000050	0.	
19,600	98,000	.044250	.004250	— .000050	0.	
20,000	100,000	.050000	.005750	— .000050	0.	
20,400	102,000	.056550	.006550	— .000050	0.	
20,800	104,000	.0650	.008450	— .000050	0.	
21,200	106,000	.0800	.0150	— .000050	0.	Tensile strength.
21,350	106,750	.1050	.0250	— .000050	0.	

General summary.

Specific gravity	7.8575
Tensile strength per square inch of original section	pounds.. 106,750
Elastic limit per square inch of original section	do... 54,000
Elongation per inch after rupture	inch.. 0.1750
Elongation per inch under strain at elastic limit	do... .001750
Reduction in diameter at point of rupture	do... .085
Reduction in area after rupture, per centum of original section	30.7
Position of rupture	at middle of stem
Character of broken surface	granular; dull eccentric spot
Elongation of inch sections	".20*, ".15

No. 587.

Marks, ³² B B₂
T₂

Length, 3'.996.

Diameter, '.798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000050	.000050	0.	.....	
5,000	10,000	.000150	.000100	0.	.....	
7,500	15,000	.000300	.000150	0.	.....	
10,000	20,000	.000450	.000150	0.	.....	
12,500	25,000	.000600	.000150	0.	.....	
15,000	30,000	.000750	.000150	0.	.....	
17,500	35,000	.000900	.000150	0.	.....	
20,000	40,000	.001050	.000150	0.	.....	
22,500	45,000	.001250	.000200	0.	.....	
25,000	50,000	.001400	.000150	0.	.....	
25,500	51,000	.001400	0.	.....	.....	
26,000	52,000	.001450	.000050	.....	.....	
26,500	53,000	.001450	0.	.....	.....	
27,000	54,000	.001500	.000050	.....	.....	
27,500	55,000	.001500	0.	— .000150	— .000150	Elastic limit.
28,000	56,000	.001500	0.	.....	.....	
28,500	57,000	.001500	0.	.....	.....	
29,000	58,000	.001700	.000200	.....	.....	
29,500	59,000	.001800	.000100	.....	.....	
30,000	60,000	.002050	.000250	.000150	.000300	
30,500	61,000	.002250	.000200	.....	.....	
31,000	62,000	.002400	.000150	.....	.....	
31,500	63,000	.002600	.000200	.....	.....	
32,000	64,000	.003000	.000400	.....	.....	
32,500	65,000	.003350	.000350	.001250	.001100	Ultimate strength.
33,000	66,000	.003850	.000500	.....	.....	
33,500	67,000	.004400	.000550	.....	.....	
34,000	68,000	.004900	.000500	.....	.....	
34,500	69,000	.005350	.000450	.....	.....	
35,000	70,000	.005950	.000600	.003500	.002250	
56,600	113,200	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 57,000
 Compression per inch under stress at elastic limitinch.. 0.001500
 Ultimate strength per square inch of original sectionpounds.. 113,200
 Manner of failure.....triple flexure

No. 2075.

Marks, ^{32 B B₇}
_{T₁}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000350	.000250	0.	.....	
3,000	15,000	.000600	.000250	0.	.....	
4,000	20,000	.000700	.000100	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001100	.000100	0.	.....	
8,000	40,000	.001300	.000200	0.	.....	
9,000	45,000	.001450	.000150	0.	.....	
9,200	46,000	.001500	.000050	.....	.....	
9,400	47,000	.001550	.000050	.....	.....	
9,600	48,000	.001550	0.	.....	.....	
9,800	49,000	.001600	.000050	.....	.....	
10,000	50,000	.001650	.000050	0.		Elastic limit.
10,200	51,000	.001850	.000200	.....	.....	
10,400	52,000	.002150	.000300	.....	.....	
10,600	53,000	.002750	.000600	.....	.....	
10,800	54,000	.003400	.000650	.....	.....	
11,000	55,000	.004250	.000850	.....	.....	
11,200	56,000	.005150	.000900	.....	.....	
11,400	57,000	.006050	.000900	.....	.....	
11,600	58,000	.006700	.000650	.....	.....	
11,800	59,000	.007600	.000900	.....	.....	
12,000	60,000	.008550	.000950	.....	.....	
12,400	62,000	.009700	.001150	.....	.....	
12,800	64,000	.011300	.001600	.....	.....	
13,200	66,000	.013400	.002100	.....	.....	
13,600	68,000	.015000	.001600	.....	.....	
14,000	70,000	.017050	.002050			Tensile strength.
14,400	72,000	.019050	.002000	.....	.....	
14,800	74,000	.020950	.001900	.....	.....	
15,200	76,000	.023550	.002600	.....	.....	
15,600	78,000	.026000	.002450	.....	.....	
16,000	80,000	.029750	.003750	.....	.....	
16,400	82,000	.032500	.002750	.....	.....	
16,800	84,000	.036500	.004000	.....	.....	
17,200	86,000	.039900	.003400	.....	.....	
17,600	88,000	.044500	.004600	.....	.....	
18,000	90,000	.050750	.006250	.....	.....	
18,400	92,000	.058150	.007400	.....	.....	
18,800	94,000	.0800	.021850	.....	.....	
19,200	96,000	.1050	.0250	.....	.....	
19,260	96,300	.1250	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	96,300
Elastic limit per square inch of original section	do...	50,000
Elongation per inch after rupture	inch..	0.1900
Elongation per inch under strain at elastic limit	do...	.001650
Reduction in diameter at point of rupture	do...	.105
Reduction in area after rupture, per centum of original section		37.1
Position of rupture	$\frac{1}{2}$ inch from middle of stem	
Character of broken surface	granular; dull center	
Elongation of inch sections	".26", ".12	

No. 607.

Marks, ^{32 BB7}_{T₂}
Length, 4'' .007.
Diameter, '' .798.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1, 000	0.	0.	0.	0.	Initial load.
2, 500	5, 000	.000100	.000100	0.	-----	
5, 000	10, 000	.000250	.000150	0.	-----	
7, 500	15, 000	.000400	.000150	0.	-----	
10, 000	20, 000	.000550	.000150	0.	-----	
12, 500	25, 000	.000700	.000150	— .000050	— .000050	
15, 000	30, 000	.000800	.000100	— .000050	0.	
17, 500	35, 000	.000950	.000150	— .000100	— .000050	
20, 000	40, 000	.001050	.000100	— .000150	— .000050	
22, 500	45, 000	.001200	.000150	— .000200	— .000050	
23, 000	46, 000	.001250	.000050	-----	-----	
23, 500	47, 000	.001250	0.	-----	-----	
24, 000	48, 000	.001250	0.	-----	-----	
24, 500	49, 000	.001300	.000050	-----	-----	
25, 000	50, 000	.001300	0.	— .000250	— .000050	Elastic limit.
25, 500	51, 000	.001300	0.	-----	-----	
26, 000	52, 000	.001350	.000050	-----	-----	
26, 500	53, 000	.001750	.000400	-----	-----	
27, 000	54, 000	.002250	.000500	-----	-----	
27, 500	55, 000	.003000	.000750	.001200	.001450	
28, 000	56, 000	.003750	.000750	-----	-----	
28, 500	57, 000	.004500	.000750	-----	-----	
29, 000	58, 000	.005600	.001100	-----	-----	
29, 500	59, 000	.006550	.000950	-----	-----	
30, 000	60, 000	.007500	.000950	.005200	.004000	Ultimate strength.
52, 700	105, 400	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section.....pounds.. 52, 000
Compression per inch under stress at elastic limit.....inch.. 0. 001350
Ultimate strength per square inch of original section.....pounds.. 105, 400
Manner of failure.....triple flexure

No. 2043.

Marks, ^{32 B B_s}_{T₁}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000350	.000250	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001450	.000200	0.	.....	
9,200	46,000	.001450	0.	.....	.....	
9,400	47,000	.001500	.000050	.....	.....	
9,600	48,000	.001500	0.	.....	.....	
9,800	49,000	.001550	.000050	.....	.....	
10,000	50,000	.001600	.000050	0.	.....	
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001750	.000100	.....	.....	
10,600	53,000	.001850	.000100	.....	.....	
10,800	54,000	.001900	.000050	.....	.....	
11,000	55,000	.002200	.000300	.000300	.000300	Elastic limit.
11,200	56,000	.002400	.000200	.....	.....	
11,400	57,000	.003000	.000600	.....	.....	
11,600	58,000	.003600	.000600	.....	.....	
11,800	59,000	.004500	.000900	.....	.....	
12,000	60,000	.005100	.000600	.....	.....	
12,400	62,000	.006500	.001400	.....	.....	
12,800	64,000	.008200	.001700	.....	.....	
13,200	66,000	.010000	.001800	.....	.....	
13,600	68,000	.011500	.001500	.....	.....	
14,000	70,000	.013150	.001650	.....	.....	
14,400	72,000	.015000	.001850	.....	.....	
14,800	74,000	.016700	.001700	.....	.....	
15,200	76,000	.018550	.001850	.....	.....	
15,600	78,000	.020550	.002000	.....	.....	
16,000	80,000	.023100	.002550	.....	.....	
16,400	82,000	.025550	.002450	.....	.....	
16,800	84,000	.028300	.002750	.....	.....	
17,200	86,000	.031250	.002950	.....	.....	
17,600	88,000	.034500	.003250	.....	.....	
18,000	90,000	.038400	.003900	.....	.....	
18,400	92,000	.042850	.004450	.....	.....	
18,800	94,000	.047550	.004700	.....	.....	
19,200	96,000	.0550	.007450	.....	.....	
19,600	98,000	.0650	.0100	.....	.....	
20,000	100,000	.0850	.0200			Tensile strength.
20,300	101,500	.1050	.0200	.....	.....	

General summary.

Specific gravity	7.8603
Tensile strength per square inch of original section.....	pounds.. 101,500
Elastic limit per square inch of original section.....	do... 54,000
Elongation per inch after rupture.....	inch.. 0.1850
Elongation per inch under strain at elastic limit	do... .001900
Reduction in diameter at point of rupture	do... .095
Reduction in area after rupture, per centum of original section	34.0
Position of rupture	$\frac{1}{4}$ inch from middle of stem
Character of broken surface.....	granular; dull center
Elongation of inch sections.....	".23*, ".14

No. 580.

Marks, ^{32 B B_s}_{T₂}

Length, 3'.998.

Diameter, ".799.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000500	.000200	0.	.....	
10,000	20,000	.000600	.000100	0.	.....	
12,500	25,000	.000750	.000150	0.	.....	
15,000	30,000	.000900	.000150	0.	.....	
17,500	35,000	.001050	.000150	0.	.....	
20,000	40,000	.001250	.000200	0.	.....	
22,500	45,000	.001350	.000100	— .000050	— .000050	
23,000	46,000	.001350	0.	.....	.....	
23,500	47,000	.001400	.000050	.....	.....	
24,000	48,000	.001450	.000050	.....	.....	
24,500	49,000	.001500	.000050	.....	.....	
25,000	50,000	.001500	0.	— .000050	0.	
25,500	51,000	.001550	.000050	.....	.....	
26,000	52,000	.001600	.000050	.....	.....	
26,500	53,000	.001650	.000050	.....	.....	
27,000	54,000	.001750	.000100			Elastic limit.
27,500	55,000	.001950	.000200	.000250	.000300	
28,000	56,000	.002400	.000450	.....	.....	
28,500	57,000	.002750	.000350	.....	.....	
29,000	58,000	.003500	.000750	.....	.....	
29,500	59,000	.004250	.000750			Ultimate strength.
30,000	60,000	.005050	.000800	.003100	.002850	
54,600	109,200	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 54,000
 Compression per inch under stress at elastic limit inch.. 0.001750
 Ultimate strength per square inch of original section pounds.. 109,200
 Manner of failure triple flexure

No. 2058.

Marks, ^{32 B B₉}_{T₁}

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001200	.000250	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001550	.000200	0.	.....	
9,200	46,000	.001600	.000050	.....	.....	
9,400	47,000	.001600	0.	.....	.....	
9,600	48,000	.001650	.000050	.....	.....	
9,800	49,000	.001650	0.	.....	.....	
10,000	50,000	.001700	.000050	0.	.....	
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001800	.000050	.....	.....	
10,600	53,000	.001800	0.	.....	.....	
10,800	54,000	.001850	.000050	.....	.....	
11,000	55,000	.001950	.000100	.000050	.000050	Elastic limit.
11,200	56,000	.002150	.000200	.....	.....	
11,400	57,000	.002450	.000300	.....	.....	
11,600	58,000	.002900	.000450	.....	.....	
11,800	59,000	.003450	.000550	.....	.....	
12,000	60,000	.004050	.000600	.....	.....	
12,400	62,000	.005650	.001600	.....	.....	
12,800	64,000	.006850	.001200	.....	.....	
13,200	66,000	.008550	.001700	.....	.....	
13,600	68,000	.010300	.001750	.....	.....	
14,000	70,000	.011650	.001350	.....	.....	
14,400	72,000	.013300	.001650	.....	.....	
14,800	74,000	.014800	.001500	.....	.....	
15,200	76,000	.016750	.001950	.....	.....	
15,600	78,000	.018550	.001800	.....	.....	
16,000	80,000	.020600	.002050	.....	.....	
16,400	82,000	.022900	.002300	.....	.....	
16,800	84,000	.025100	.002200	.....	.....	
17,200	86,000	.028300	.003200	.....	.....	
17,600	88,000	.030850	.002550	.....	.....	
18,000	90,000	.034250	.003400	.....	.....	
18,400	92,000	.037900	.003650	.....	.....	
18,800	94,000	.041500	.003600	.....	.....	
19,200	96,000	.046600	.005100	.....	.....	
19,600	98,000	.053000	.006400	.....	.....	
20,000	100,000	.061000	.008000	.....	.....	
20,400	102,000	.073250	.012250	.....	.....	
20,800	104,000	.1000	.026750			Tensile strength.

General summary.

Specific gravity.....	7.8649
Tensile strength per square inch of original section.....pounds..	104,000
Elastic limit per square inch of original section.....do....	55,000
Elongation per inch after rupture.....inch..	0.1800
Elongation per inch under strain at elastic limit.....do....	.001950
Reduction in diameter at point of rupture.....do....	.084
Reduction in area after rupture, per centum of original section.....	30.7
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem
Character of broken surface.....	granular; dull center
Elongation of inch sections.....	".23", ".13

No. 588.

Marks, ^{32 B B₂}
T₂

Length, 4'' .002.

Diameter, '' .799.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000500	.000200	0.	.....	
10,000	20,000	.000650	.000150	0.	.....	
12,500	25,000	.000750	.000100	0.	.....	
15,000	30,000	.000950	.000200	0.	.....	
17,500	35,000	.001100	.000150	0.	.....	
20,000	40,000	.001300	.000200	0.	.....	
22,500	45,000	.001400	.000100	0.	.....	
23,000	46,000	.001450	.000050	.....	.....	
23,500	47,000	.001500	.000050	.....	.....	
24,000	48,000	.001500	0.	.....	.....	
24,500	49,000	.001550	.000050	.....	.....	
25,000	50,000	.001550	0.	0.	.....	
25,500	51,000	.001600	.000050	.....	.....	
26,000	52,000	.001600	0.	.....	.....	
26,500	53,000	.001650	.000050	.....	.....	
27,000	54,000	.001750	.000050	.....	.....	
27,500	55,000	.001750	.000050	.000100	.000100	Elastic limit.
28,000	56,000	.001900	.000150	.....	.....	
28,500	57,000	.002050	.000150	.....	.....	
29,000	58,000	.002300	.000250	.....	.....	
29,500	59,000	.002750	.000450	.....	.....	
30,000	60,000	.003250	.000500	.001450	.001350	
30,500	61,000	.003800	.000550	.....	.....	
31,000	62,000	.004500	.000700	.....	.....	
31,500	63,000	.005150	.000650	.....	.....	
32,000	64,000	.005900	.000750	.....	.....	
32,500	65,000	.006750	.000850	.004500	.003050	Ultimate strength.
55,400	110,800	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 55,000
 Compression per inch under stress at elastic limit..... inch.. 0.001750
 Ultimate strength per square inch of original section pounds.. 110,800
 Manner of failure..... triple flexure

No. 2059.

Marks, $^{32}B B_{10}$
 T_1

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001450	.000100	0.	.....	
9,200	46,000	.001500	.000050			Elastic limit.
9,400	47,000	.001500	0.	.....	.....	
9,600	48,000	.001550	.000050	.....	.....	
9,800	49,000	.001600	.000050	.....	.....	
10,000	50,000	.001750	.000150	.000100	.000100	
10,200	51,000	.001900	.000150	.....	.....	
10,400	52,000	.002100	.000200	.....	.....	
10,600	53,000	.002400	.000300	.....	.....	
10,800	54,000	.002800	.000400	.....	.....	
11,000	55,000	.003150	.000350	.....	.....	
11,200	56,000	.003650	.000500			
11,400	57,000	.004100	.000500	.....	.....	
11,600	58,000	.004800	.000650	.....	.....	
11,800	59,000	.005600	.000800	.....	.....	
12,000	60,000	.006250	.000650	.....	.....	
12,400	62,000	.007250	.001500	.....	.....	
12,800	64,000	.009350	.001600	.....	.....	
13,200	66,000	.011000	.001650	.....	.....	
13,600	68,000	.012750	.001750	.....	.....	
14,000	70,000	.014250	.001500			Tensile strength.
14,400	72,000	.016250	.002000	.....	.....	
14,800	74,000	.018150	.001900	.....	.....	
15,200	76,000	.020000	.001850	.....	.....	
15,600	78,000	.022100	.002100	.....	.....	
16,000	80,000	.024250	.002150	.....	.....	
16,400	82,000	.026750	.002500	.....	.....	
16,800	84,000	.029600	.002850	.....	.....	
17,200	86,000	.032300	.002700	.....	.....	
17,600	88,000	.035950	.003650	.....	.....	
18,000	90,000	.039300	.003350			
18,400	92,000	.043750	.004450	.....	.....	
18,800	94,000	.049500	.005750	.....	.....	
19,200	96,000	.057000	.007500	.....	.....	
19,600	98,000	.066500	.009500			
20,000	100,000	.0900	.0235	.....	.....	
20,120	100,600	.1150	.0250	.....	.....	

General summary.

Specific gravity.....	7.8578
Tensile strength per square inch of original section.....	pounds.. 100,600
Elastic limit per square inch of original section.....	do... 49,000
Elongation per inch after rupture.....	inch.. 0.1550
Elongation per inch under strain at elastic limit.....	do... .001600
Reduction in diameter at point of rupture.....	do... .075
Reduction in area after rupture, per centum of original section.....	27.4
Position of rupture.....	".4 from neck
Character of broken surface.....	granular; dull center
Elongation of inch sections.....	".23*, ".09

No. 589.

Marks, ^{32 B B₁₀}_{T₂}Length, 3¹¹.999.Diameter, ¹¹.798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	-.000050	-.000050	
10,000	20,000	.000600	.000200	-.000050	0.	
12,500	25,000	.000750	.000150	-.000050	0.	
15,000	30,000	.000900	.000150	0.	.000050	
17,500	35,000	.001100	.000200	0.	0.	
20,000	40,000	.001250	.000150	0.	0.	
20,500	41,000	.001300	.000050	.....	.....	
21,000	42,000	.001300	0.	.....	.....	
21,500	43,000	.001350	.000050	.....	.....	
22,000	44,000	.001400	.000050	.....	.....	
22,500	45,000	.001450	.000050	0.	.....	
23,000	46,000	.001500	.000050	.....	.....	
23,500	47,000	.001550	.000050	.....	.....	
24,000	48,000	.001650	.000100	.....	.....	
24,500	49,000	.001750	.000100			Elastic limit.
25,000	50,000	.001900	.000150	.000250	.000250	
25,500	51,000	.002350	.000450	.....	.....	
26,000	52,000	.003000	.000650	.....	.....	
26,500	53,000	.003700	.000700	.....	.....	
27,000	54,000	.004500	.000800			Ultimate strength.
27,500	55,000	.005250	.000750	.003300	.003050	
55,400	110,800	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 49,000
 Compression per inch under stress at elastic limit.....inch.. 0.001750
 Ultimate strength per square inch of original section.....pounds.. 110,800
 Manner of failure.....triple flexure

No. 2065.

Marks, $^{32}B B_{11}$ Diameter, $\frac{1}{2}$ ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	.000050	.000050	
2,000	10,000	.000450	.000300	.000100	.000050	
3,000	15,000	.000600	.000150	.000100	0.	
4,000	20,000	.000800	.000200	.000100	0.	
5,000	25,000	.000900	.000100	.000100	0.	
6,000	30,000	.001050	.000150	.000100	0.	
7,000	35,000	.001200	.000150	.000100	0.	
8,000	40,000	.001350	.000150	.000100	0.	
9,000	45,000	.001500	.000150	.000100	0.	
9,200	46,000	.001550	.000050			Elastic limit.
9,400	47,000	.001650	.000100	.....	.....	
9,600	48,000	.001700	.000050	.....	.....	
9,800	49,000	.001750	.000050	.....	.....	
10,000	50,000	.001800	.000050	.000150	.000050	
10,200	51,000	.001850	.000050	.....	.....	
10,400	52,000	.001900	.000050	.....	.....	
10,600	53,000	.002000	.000100	.....	.....	
10,800	54,000	.002050	.000050	.....	.....	
11,000	55,000	.002150	.000100	.000200	.000050	
11,200	56,000	.002400	.000250			
11,400	57,000	.002600	.000200	.....	.....	
11,600	58,000	.003100	.000500	.....	.....	
11,800	59,000	.003650	.000550	.....	.....	
12,000	60,000	.004150	.000500	.....	.....	
12,400	62,000	.005600	.001450	.....	.....	
12,800	64,000	.006900	.001300	.....	.....	
13,200	66,000	.008350	.001450	.....	.....	
13,600	68,000	.009850	.001500	.....	.....	
14,000	70,000	.011200	.001350			Tensile strength.
14,400	72,000	.012750	.001650	.....	.....	
14,800	74,000	.014350	.001600	.....	.....	
15,200	76,000	.015950	.001600	.....	.....	
15,600	78,000	.017650	.001700	.....	.....	
16,000	80,000	.019300	.001650	.....	.....	
16,400	82,000	.021500	.002200	.....	.....	
16,800	84,000	.023600	.002100	.....	.....	
17,200	86,000	.026000	.002400	.....	.....	
17,600	88,000	.028250	.002250	.....	.....	
18,000	90,000	.031000	.002750			
18,400	92,000	.033550	.002550	.....	.....	
18,800	94,000	.037500	.003950	.....	.....	
19,200	96,000	.041100	.003600	.....	.....	
19,600	98,000	.045600	.004500	.....	.....	
20,000	100,000	.051050	.005450	.....	.....	
20,400	102,000	.057600	.006550	.....	.....	
20,800	104,000	.0700	.0124	.....	.....	
21,200	106,000	.0300	.0200	.....	.....	
21,340	106,700	.1150	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds....	106,700
Elastic limit per square inch of original section.....	do....	55,000
Elongation per inch after rupture.....	inch..	0.1750
Elongation per inch under strain at elastic limit.....	do....	.002150
Reduction in diameter at point of rupture.....	do....	.085
Reduction in area after rupture, per centum of original section.....		30.7
Position of rupture.....	".1 from middle of stem	
Character of broken surface.....	granular; dull center	
Elongation of inch sections.....	".20*, ".15	

No. 597.

Marks, ^{32 B B11}_{T₂}
 Length, 3'' .999.
 Diameter, '' .798.
 Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000700	.000150	0.	.....	
15,000	30,000	.000850	.000150	0.	.....	
17,500	35,000	.001050	.000200	0.	.....	
20,000	40,000	.001200	.000150	0.	.....	
22,500	45,000	.001300	.000100	0.	.....	
23,000	46,000	.001350	.000050	.....	.....	
23,500	47,000	.001350	0.	.....	.....	
24,000	48,000	.001400	.000050	.....	.....	
24,500	49,000	.001400	0.	.....	.....	
25,000	50,000	.001500	.000100	0.	.....	
25,500	51,000	.001500	0.	.....	.....	
26,000	52,000	.001500	0.			Elastic limit.
26,500	53,000	.001400	.000100	.....	.....	
27,000	54,000	.001350	.000050	.....	.....	
27,500	55,000	.001250	.000100	— .000400	— .000400	
28,000	56,000	.001150	.000100	.....	.....	
28,500	57,000	.001150	0.	.....	.....	
29,000	58,000	.001150	0.	.....	.....	
29,500	59,000	.001200	.000050	.....	.....	
30,000	60,000	.001300	.000100	— .000600	— .000200	
30,500	61,000	.001500	.000200	.....	.....	
31,000	62,000	.001700	.000200			Ultimate strength.
31,500	63,000	.001850	.000150	.....	.....	
32,000	64,000	.002050	.000200	.....	.....	
32,500	65,000	.002350	.000300	.000350	.000950	
33,000	66,000	.002850	.000500	.....	.....	
33,500	67,000	.003150	.000300	.....	.....	
34,000	68,000	.003650	.000500	.....	.....	
34,500	69,000	.004300	.000650	.....	.....	
35,000	70,000	.004850	.000550	.002400	.002050	
56,100	112,200	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section	pounds..	52,000
Compression per inch under stress at elastic limit	inch..	0.001500
Ultimate strength per square inch of original section	pounds..	112,200
Manner of failure	triple flexure	

No. 2066.

Marks, ³²B B₁₂
T₁

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000300	.000100	0.	.....	
4,000	20,000	.000550	.000250	0.	.....	
5,000	25,000	.000650	.000100	0.	.....	
6,000	30,000	.000900	.000250	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001400	.000200	0.	.....	
9,200	46,000	.001400	0.	.....	.....	
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001500	.000050	.....	.....	
9,800	49,000	.001500	0.	.....	.....	
10,000	50,000	.001550	.000050	0.	.....	
10,200	51,000	.001650	.000100			Elastic limit.
10,400	52,000	.001750	.000100	.....	.....	
10,600	53,000	.002050	.000300	.....	.....	
10,800	54,000	.002450	.000400	.....	.....	
11,000	55,000	.003000	.000550	.....	.....	
11,200	56,000	.003600	.000600	.....	.....	
11,400	57,000	.004150	.000550	.....	.....	
11,600	58,000	.005100	.000950	.....	.....	
11,800	59,000	.005800	.000700	.....	.....	
12,000	60,000	.006600	.000800	.....	.....	
12,400	62,000	.008100	.001500	.....	.....	
12,800	64,000	.009600	.001500	.....	.....	
13,200	66,000	.011200	.001600	.....	.....	
13,600	68,000	.013100	.001900	.....	.....	
14,000	70,000	.014900	.001800	.....	.....	
14,400	72,000	.016600	.001700	.....	.....	
14,800	74,000	.018600	.002000	.....	.....	
15,200	76,000	.020600	.002000	.....	.....	
15,600	78,000	.023000	.002400	.....	.....	
16,000	80,000	.025400	.002500	.....	.....	
16,400	82,000	.028000	.002600	.....	.....	
16,800	84,000	.031000	.003000	.....	.....	
17,200	86,000	.034500	.003500	.....	.....	
17,600	88,000	.037600	.003100	.....	.....	
18,000	90,000	.042250	.004650	.....	.....	
18,400	92,000	.047250	.005000	.....	.....	
18,800	94,000	.054000	.006750	.....	.....	
19,200	96,000	.064250	.010750	.....	.....	
19,600	98,000	.0850	.020750	.....	.....	
19,820	99,100	.1200	.0350			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	99,100
Elastic limit per square inch of original section	do...	52,000
Elongation per inch after rupture	inch..	0.2150
Elongation per inch under strain at elastic limit.....	do...	.001750
Reduction in diameter at point of rupture.....	do...	.095
Reduction in area after rupture, per centum of original section.....		34.0
Position of rupture	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface	granular; dull center	
Elongation of inch sections.....	".23*, ".20	

H. Ex. 31—29

No. 598.

Marks, ^{32 B B₁₂}_{T₂}
Length, 3''⁹⁹⁵.
Diameter, ''⁷⁹⁸.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	-----	
5,000	10,000	.000300	.000150	0.	-----	
7,500	15,000	.000500	.000200	0.	-----	
10,000	20,000	.000600	.000100	0.	-----	
12,500	25,000	.000800	.000200	0.	-----	
15,000	30,000	.000950	.000150	0.	-----	
17,500	35,000	.001150	.000200	0.	-----	
20,000	40,000	.001250	.000100	0.	-----	
20,500	41,000	.001300	.000050	-----	-----	
21,000	42,000	.001350	.000050	-----	-----	
21,500	43,000	.001400	.000050	-----	-----	
22,000	44,000	.001450	.000050	-----	-----	
22,500	45,000	.001450	0.	0.	-----	
23,000	46,000	.001500	.000050	-----	-----	
23,500	47,000	.001500	0.	-----	-----	
24,000	48,000	.001500	0.	-----	-----	
24,500	49,000	.001500	0.	-----	-----	
25,000	50,000	.001550	.000050	0.	-----	
25,500	51,000	.001600	.000050	-----	-----	Elastic limit.
26,000	52,000	.001700	.000100	-----	-----	
26,500	53,000	.001900	.000200	-----	-----	
27,000	54,000	.002250	.000350	-----	-----	
27,500	55,000	.002600	.000350	.000850	.000850	
28,000	56,000	.003000	.000400	-----	-----	
28,500	57,000	.003600	.000600	-----	-----	
29,000	58,000	.004200	.000600	-----	-----	
29,500	59,000	.004750	.000550	-----	-----	
30,000	60,000	.005300	.000550	.003250	.002400	
53,600	107,200	-----	-----	-----	-----	Ultimate strength.

General summary.

Elastic limit per square inch of original section pounds.. 51,000
Compression per inch under stress at elastic limit..... inch.. 0.001600
Ultimate strength per square inch of original section..... pounds.. 107,200
Manner of failure triple flexure

No. 2067.

Marks, ^{32 B B₁₃}
_{T₁}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	— .000050	— .000050	
2,000	10,000	.000200	.000100	— .000050	0.	
3,000	15,000	.000350	.000150	— .000050	0.	
4,000	20,000	.000500	.000150	— .000050	0.	
5,000	25,000	.000600	.000100	— .000050	0.	
6,000	30,000	.000850	.000250	— .000050	0.	
7,000	35,000	.000950	.000100	— .000050	0.	
8,000	40,000	.001100	.000150	— .000050	0.	
9,000	45,000	.001300	.000200	— .000050	0.	
9,200	46,000	.001300	0.	.....	.....	
9,400	47,000	.001350	.000050	.....	.....	
9,600	48,000	.001350	0.	.....	.....	
9,800	49,000	.001400	.000050	.....	.....	
10,000	50,000	.001450	.000050	— .000050	0.	
10,200	51,000	.001500	.000050	.....	.....	
10,400	52,000	.001500	0.	.....	.....	
10,600	53,000	.001550	.000050	.....	.....	
10,800	54,000	.001600	.000050	.....	.....	
11,000	55,000	.001700	.000100	.000010	.000050	Elastic limit.
11,200	56,000	.001950	.000250	.....	.....	
11,400	57,000	.002300	.000350	.....	.....	
11,600	58,000	.002850	.000550	.....	.....	
11,800	59,000	.003450	.000600	.....	.....	
12,000	60,000	.004150	.000700	.....	.....	
12,400	62,000	.005600	.001450	.....	.....	
12,800	64,000	.006950	.001350	.....	.....	
13,200	66,000	.008600	.001650	.....	.....	
13,600	68,000	.010150	.001550	.....	.....	
14,000	70,000	.011750	.001600	.....	.....	
14,400	72,000	.013750	.002000	.....	.....	
14,800	74,000	.015400	.001650	.....	.....	
15,200	76,000	.017200	.001800	.....	.....	
15,600	78,000	.019300	.002100	.....	.....	
16,000	80,000	.021150	.001850	.....	.....	
16,400	82,000	.023700	.002550	.....	.....	
16,800	84,000	.026300	.002600	.....	.....	
17,200	86,000	.029000	.002700	.....	.....	
17,600	88,000	.032000	.003000	.....	.....	
18,000	90,000	.035400	.003400	.....	.....	
18,400	92,000	.039650	.004250	.....	.....	
18,800	94,000	.044050	.004400	.....	.....	
19,200	96,000	.050350	.006300	.....	.....	
19,600	98,000	.058400	.008050	.....	.....	
20,000	100,000	.0650	.0066	.....	.....	Tensile strength.
20,300	101,500	.1050	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	101,500
Elastic limit per square inch of original section.....	do...	55,000
Elongation per inch after rupture.....	inch..	0.1600
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do...	.085
Reduction in area after rupture, per centum of original section.....		30.7
Position of rupture.....	$\frac{1}{2}$ inch from middle of stem	
Character of broken surface.....	granular; dull center	
Elongation of inch sections.....	".23*, ".09	

No. 599.

Marks, $^{32}B_{13}$
 T_2

Length, 4".

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	-----	
5,000	10,000	.000250	.000150	0.	-----	
7,500	15,000	.000400	.000150	0.	-----	
10,000	20,000	.000550	.000150	0.	-----	
12,500	25,000	.000700	.000150	-.000050	-.000050	
15,000	30,000	.000900	.000200	-.000050	0.	
17,500	35,000	.001050	.000150	-.000050	0.	
20,000	40,000	.001200	.000150	-.000050	0.	
22,500	45,000	.001350	.000150	-.000050	0.	
23,000	46,000	.001350	0.	-----	-----	
23,500	47,000	.001400	.000050	-----	-----	
24,000	48,000	.001450	.000050	-----	-----	
24,500	49,000	.001500	.000050	-----	-----	
25,000	50,000	.001500	0.	-.000050	0.	Elastic limit.
25,500	51,000	.001550	.000050	-----	-----	
26,000	52,000	.001600	.000050	-----	-----	
26,500	53,000	.001700	.000100	-----	-----	
27,000	54,000	.001800	.000100	-----	-----	
27,500	55,000	.002050	.000250	.000300	.000350	
28,000	56,000	.002500	.000450	-----	-----	
28,500	57,000	.003100	.000600	-----	-----	
29,000	58,000	.003700	.000600	-----	-----	
29,500	59,000	.004300	.000600	-----	-----	
30,000	60,000	.004850	.000550	.002750	.002450	Ultimate strength.
56,700	113,400	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section pounds.. 52,000
 Compression per inch under stress at elastic limit..... inch.. 0.001600
 Ultimate strength per square inch of original section pounds.. 113,400
 Manner of failure triple flexure

No. 2069.

Marks, ^{32 B B₁₄}_{T₁}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000600	.000250	0.	.....	
4,000	20,000	.000750	.000150	0.	.....	
5,000	25,000	.000900	.000150	0.	.....	
6,000	30,000	.001000	.000100	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001500	.000150	0.	.....	
9,200	46,000	.001550	.000050			Elastic limit.
9,400	47,000	.001600	.000050	.....	.....	
9,600	48,000	.001650	.000050	.....	.....	
9,800	49,000	.001700	.000050	.....	.....	
10,000	50,000	.001750	.000050	.000050	.000050	
10,200	51,000	.001800	.000050	.....	.....	
10,400	52,000	.001900	.000100	.....	.....	
10,600	53,000	.001950	.000050	.....	.....	
10,800	54,000	.002050	.000100	.000250	.000200	
11,000	55,000	.002200	.000150	.....	.....	
11,200	56,000	.002450	.000250			Tensile strength.
11,400	57,000	.002800	.000350	.....	.....	
11,600	58,000	.003300	.000500	.....	.....	
11,800	59,000	.003800	.000500	.....	.....	
12,000	60,000	.004750	.000950	.....	.....	
12,400	62,000	.006150	.001400	.....	.....	
12,800	64,000	.007600	.091450	.....	.....	
13,200	66,000	.009150	.001550	.....	.....	
13,600	68,000	.010750	.001600	.....	.....	
14,000	70,000	.012600	.001850	.....	.....	
14,400	72,000	.014250	.001650			Tensile strength.
14,800	74,000	.016000	.001750	.....	.....	
15,200	76,000	.018100	.002100	.....	.....	
15,600	78,000	.020000	.001900	.....	.....	
16,000	80,000	.022250	.002250	.....	.....	
16,400	82,000	.024600	.002350	.....	.....	
16,800	84,000	.027000	.002400	.....	.....	
17,200	86,000	.030000	.003000	.....	.....	
17,600	88,000	.033250	.003750	.....	.....	
18,000	90,000	.036750	.003500	.....	.....	
18,400	92,000	.041000	.004250			Tensile strength.
18,800	94,000	.046500	.005500	.....	.....	
19,200	96,000	.053500	.007000	.....	.....	
19,600	98,000	.061500	.008000	.....	.....	
20,000	100,000	.0750	.0135	.....	.....	
20,280	101,400	.1000	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	101,400
Elastic limit per square inch of original section.....	do...	54,000
Elongation per inch after rupture.....	inch..	0.1600
Elongation per inch under strain at elastic limit.....	do...	.002050
Reduction in diameter at point of rupture.....	do...	.095
Reduction in area after rupture, per centum of original section.....		34.0
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface.....	granular; dull center	
Elongation of inch sections.....	".22*, ".10	

No. 601.

Marks, ^{32 B B₁₄}_{T₂}

Length, 4".

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compress- ion per inch.	Successive compress- ion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000450	.000150	0.	.....	
10,000	20,000	.000600	.000150	0.	.....	
12,500	25,000	.000750	.000150	0.	.....	
15,000	30,000	.000900	.000150	— .000050	— .000050	
17,500	35,000	.001050	.000150	— .000100	— .000050	
20,000	40,000	.001250	.000200	— .000100	0.	
22,500	45,000	.001350	.000100	— .000100	0.	
25,000	50,000	.001500	.000150	— .000100	0.	
25,500	51,000	.001500	0.	.....	.....	
26,000	52,000	.001500	0.	.....	.....	
26,500	53,000	.001500	0.	.....	.....	
27,000	54,000	.001500	0.	.....	.....	
27,500	55,000	.001500	0.	— .000150	— .000050	Elastic limit.
28,000	56,000	.001550	.000050	.....	.....	
28,500	57,000	.001600	.000050	.....	.....	
29,000	58,000	.001800	.000200	.....	.....	
29,500	59,000	.002050	.000250	.....	.....	
30,000	60,000	.002550	.000500	.000700	.000850	
30,500	61,000	.003050	.000500	.....	.....	
31,000	62,000	.003750	.000700	.....	.....	
31,500	63,000	.004400	.000650	.....	.....	
32,000	64,000	.005250	.000850	.....	.....	
32,500	65,000	.006000	.000750			Ultimate strength.
55,900	111,800	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds... 57,000
 Compression per inch under stress at elastic limit.....inch... 0.001600
 Ultimate strength per square inch of original section.....pounds... 111,800
 Manner of failure.....triple flexure

No. 2070.

Marks, ^{32 B B₁₅}_{T₁}Diameter, ¹¹/₁₆.505.

Sectional area, 20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	.....	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000700	.000200	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	0.	.....	
8,000	40,000	.001200	.000150	0.	.....	
9,000	45,000	.001300	.000100	0.	.....	
9,200	46,000	.001350	.000050	.....	.....	
9,400	47,000	.001400	.000050	.....	.....	
9,600	48,000	.001500	.000100	.....	.....	
9,800	49,000	.001550	.000050	.....	.....	
10,000	50,000	.001600	.000050	.0	.....	Elastic limit.
10,200	51,000	.001750	.000150	.....	.....	
10,400	52,000	.002000	.000250	.....	.....	
10,600	53,000	.002400	.000400	.....	.....	
10,800	54,000	.002650	.000250	.....	.....	
11,000	55,000	.003350	.000700	.....	.....	
11,200	56,000	.003850	.000500	.....	.....	
11,400	57,000	.004600	.000750	.....	.....	
11,600	58,000	.005250	.000650	.....	.....	
11,800	59,000	.005950	.000700	.....	.....	
12,000	60,000	.006450	.000500	.....	.....	
12,400	62,000	.008000	.001550	.....	.....	
12,800	64,000	.009350	.001350	.....	.....	
13,200	66,000	.010650	.001300	.....	.....	
13,600	68,000	.012250	.001600	.....	.....	
14,000	70,000	.014000	.001750	.....	.....	
14,400	72,000	.015600	.001600	.....	.....	
14,800	74,000	.017250	.001650	.....	.....	
15,200	76,000	.019050	.001800	.....	.....	
15,600	78,000	.021000	.001950	.....	.....	
16,000	80,000	.023250	.002250	.....	.....	
16,400	82,000	.025500	.002250	.....	.....	
16,800	84,000	.028000	.002500	.....	.....	
17,000	86,000	.030500	.002500	.....	.....	
17,000	88,000	.033100	.002600	.....	.....	
18,000	90,000	.037000	.003900	.....	.....	
18,400	92,000	.040600	.003600	.....	.....	
18,800	94,000	.044900	.004300	.....	.....	
19,200	96,000	.049500	.004600	.....	.....	
19,600	98,000	.051550	.002050	.....	.....	
20,000	100,000	.061000	.009450	.....	.....	
25,000	102,000	.0900	.0290	.....	.....	
26,050	103,025	.1150	.0250	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	103,025
Elastic limit per square inch of original section.....	do...	50,000
Elongation per inch after rupture.....	inch..	0.1650
Elongation per inch under strain at elastic limit.....	do...	.001600
Reduction of diameter at point of rupture.....	do...	.075
Reduction of area after rupture, per centum of original section.....		27.4
Position of rupture.....	".45 from middle of stem	
Character of broken surface.....	granular; dull center	
Elongation in inch sections.....	".20*, ".13	

No. 602.

Marks, ^{32 B B₁₅}_{T₂}

Length, 4''.

Diameter, .799.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000450	.000150	0.	.....	
10,000	20,000	.000600	.000150	0.	.....	
12,500	25,000	.000750	.000150	0.	.....	
15,000	30,000	.000950	.000200	0.	.....	
17,500	35,000	.001050	.000100	-.000050	-.000050	
20,000	40,000	.001200	.000150	-.000050	0.	
20,500	41,000	.001250	.000050	.....	.....	
21,000	42,000	.001250	0.	.....	.....	
21,500	43,000	.001300	.000050	.....	.....	
22,000	44,000	.001350	.000050	.....	.....	
22,500	45,000	.001350	0.	-.000050	0.	
23,000	46,000	.001400	.000050	.....	.....	
23,500	47,000	.001450	.000050	.....	.....	
24,000	48,000	.001500	.000050	.....	.....	
24,500	49,000	.001500	0.	.....	.....	
25,000	50,000	.001500	0.	0.	.000050	
25,500	51,000	.001550	.000050			Elastic limit.
26,000	52,000	.001650	.000100	.....	.....	
26,500	53,000	.001950	.000300	.....	.....	
27,000	54,000	.002450	.000500	.....	.....	
27,500	55,000	.003200	.000750	.001400	.001400	
28,000	56,000	.003800	.000600	.....	.....	
28,500	57,000	.004500	.000700	.....	.....	
29,000	58,000	.005500	.001000	.....	.....	
29,500	59,000	.006450	.000950	.....	.....	
30,000	60,000	.007300	.000850	.005200	.003800	Ultimate strength.
56,900	113,800	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 52,000
 Compression per inch under stress at elastic limit..... inch.. .001650
 Ultimate strength per square inch of original section..... pounds.. 113,800
 Manner of failure triple flexure

No. 2061.

Marks, ³² B B₁₆Diameter, ^{T₁} .505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	0.	.....	
2,000	10,000	.000150	.000100	0.	.....	
3,000	15,000	.000250	.000100	0.	.....	
4,000	20,000	.000350	.000100	0.	.....	
5,000	25,000	.000550	.000200	0.	.....	
6,000	30,000	.000700	.000150	0.	.....	
7,000	35,000	.000900	.000200	0.	.....	
8,000	40,000	.001050	.000150	0.	.....	
9,000	45,000	.001350	.000300	0.	.....	
9,200	46,000	.001450	.000100	.....	.....	
9,400	47,000	.001500	.000050	.....	.....	
9,600	48,000	.001550	.000050	.....	.....	
9,800	49,000	.001550	0.	.....	.....	
10,000	50,000	.001600	.000050	0.	.....	
10,200	51,000	.001650	.000050			Elastic limit.
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001850	.000150	.....	.....	
10,800	54,000	.002150	.000300	.....	.....	
11,000	55,000	.002600	.000450	.....	.....	
11,200	56,000	.003100	.000500	.....	.....	
11,400	57,000	.003550	.000450	.....	.....	
11,600	58,000	.004100	.000550	.....	.....	
11,800	59,000	.004900	.000800	.....	.....	
12,000	60,000	.005500	.000600	.....	.....	
12,400	62,000	.007100	.001600	.....	.....	
12,800	64,000	.008600	.001500	.....	.....	
13,200	66,000	.010200	.001600	.....	.....	
13,600	68,000	.011000	.000800	.....	.....	
14,000	70,000	.013300	.002300	.....	.....	
14,400	72,000	.015000	.001700	.....	.....	
14,800	74,000	.017000	.002000	.....	.....	
15,200	76,000	.018900	.001900	.....	.....	
15,600	78,000	.020600	.001700	.....	.....	
16,000	80,000	.022950	.002350			Tensile strength.
16,400	82,000	.025200	.002250	.....	.....	
16,800	84,000	.027650	.002450	.....	.....	
17,200	86,000	.030600	.002950	.....	.....	
17,600	88,000	.033250	.002650	.....	.....	
18,000	90,000	.037550	.004300	.....	.....	
18,400	92,000	.041750	.004200	.....	.....	
18,800	94,000	.046200	.004450	.....	.....	
19,200	96,000	.052250	.006050	.....	.....	
19,600	98,000	.060500	.008250	.....	.....	
20,000	100,000	.071000	.010500			
20,400	102,000	.0950	.0240	.....	.....	
20,480	102,400	.1150	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	102,400
Elastic limit per square inch of original section	do..	52,000
Elongation per inch after rupture	inch..	0.1600
Elongation per inch under strain at elastic limit	do..	.001700
Reduction in diameter at point of rupture	do..	.085
Reduction in area after rupture, per centum of original section		30.7
Position of rupture		.4 from neck
Character of broken surface		granular; dull center
Elongation of inch sections		.23*, .09

No. 592.

Marks, ^{32 B B₁₆}
 ^{T₂}
Length, 4".
Diameter, ".798.
Sectional area, .50 square inch.

Applied loads.		Comp res- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000300	.000200	0.	.....	
7,500	15,000	.000450	.000150	0.	.....	
10,000	20,000	.000600	.000150	0.	.....	
12,500	25,000	.000750	.000150	0.	.....	
15,000	30,000	.000900	.000150	0.	.....	
17,500	35,000	.001100	.000200	0.	.....	
20,000	40,000	.001250	.000150	0.	.....	
22,500	45,000	.001450	.000200	0.	.....	
23,000	46,000	.001450	0.	.....	.....	
23,500	47,000	.001500	.000050	.....	.....	
24,000	48,000	.001500	0.	.....	.....	
24,500	49,000	.001500	.000050	.....	.....	
25,000	50,000	.001500	0.	0.	.....	
25,500	51,000	.001500	0.	.....	.....	
26,000	52,000	.001500	0.	.....	.....	
26,500	53,000	.001500	— .000050			Elastic limit.
27,000	54,000	.001450	— .000050	.....	.....	
27,500	55,000	.001300	— .000150	— .000450	— .000450	
28,000	56,000	.001150	— .000150	— .000650	— .000200	
28,500	57,000	.000950	— .000200	.....	.....	
29,000	58,000	.000600	— .000350			Ultimate strength.
29,500	59,000	.000400	— .000200	.....	.....	
30,000	60,000	.000200	— .000200	— .001700	— .002350	
53,200	106,400	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 53,000
Compression per inch under stress at elastic limitinch.. 0.001500
Ultimate strength per square inch of original sectionpounds.. 106,400
Manner of failuretriple flexure

No. 2071.

Marks, ^{32 B B₁₇}_{T₁}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000800	.000150	0.	.....	
7,000	35,000	.000950	.000150	0.	.....	
8,000	40,000	.001100	.000150	0.	.....	
9,000	45,000	.001250	.000150	0.	.....	
9,200	46,000	.001300	.000050			Elastic limit.
9,400	47,000	.001350	.000050	.....	.....	
9,600	48,000	.001400	.000050	.....	.....	
9,800	49,000	.001450	.000050	.....	.....	
10,000	50,000	.001500	.000050	0.	.....	
10,200	51,000	.001500	0.	.....	.....	
10,400	52,000	.001600	.000100	.....	.....	
10,600	53,000	.001900	.000300	.....	.....	
10,800	54,000	.002400	.000500	.....	.....	
11,000	55,000	.002850	.000450	.....	.....	
11,200	56,000	.003350	.000500	.....	.....	
11,400	57,000	.004000	.000650	.....	.....	
11,600	58,000	.004700	.000700	.....	.....	
11,800	59,000	.005600	.000900	.....	.....	
12,000	60,000	.006100	.000500	.....	.....	
12,400	62,000	.007750	.001650	.....	.....	
12,800	64,000	.009900	.002150	.....	.....	
13,200	66,000	.011050	.001150	.....	.....	
13,600	68,000	.012900	.001850	.....	.....	
14,000	70,000	.014550	.001650	.....	.....	
14,400	72,000	.016250	.001700	.....	.....	
14,800	74,000	.018100	.001850	.....	.....	
15,200	76,000	.020100	.002000	.....	.....	
15,600	78,000	.022000	.001900	.....	.....	
16,000	80,000	.024450	.002450	.....	.....	
16,400	82,000	.027000	.002550	.....	.....	
16,800	84,000	.030250	.003250	.....	.....	
17,200	86,000	.033350	.003100	.....	.....	
17,600	88,000	.036750	.003400	.....	.....	
18,000	90,000	.041000	.004250	.....	.....	
18,400	92,000	.045350	.004350	.....	.....	
18,800	94,000	.051750	.006400	.....	.....	
19,200	96,000	.059500	.007750	.....	.....	
19,600	98,000	.0750	.0155	.....	.....	
20,000	100,000	.1000	.0250			Tensile strength.
20,010	100,050	.1050	.0050	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	100,050
Elastic limit per square inch of original section	do ..	52,000
Elongation per inch after rupture	inch..	0.1700
Elongation per inch under strain at elastic limit	do ..	.001600
Reduction in diameter at point of rupture	do ..	.095
Reduction in area after rupture, per centum of original section		34.0
Position of rupture	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface	granular; dull center	
Elongation of inch sections	".23*, ".11	

No. 603.

Marks, ^{32 B B₁₇}_{T₂}
Length, 4".
Diameter ".797.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	-----	
5,000	10,000	.000300	.000150	0.	-----	
7,500	15,000	.000500	.000200	0.	-----	
10,000	20,000	.000650	.000150	0.	-----	
12,500	25,000	.000800	.000150	0.	-----	
15,000	30,000	.001000	.000200	0.	-----	
17,500	35,000	.001200	.000200	0.	-----	
20,000	40,000	.001350	.000150	.000050	.000050	
20,500	41,000	.001350	0.	-----	-----	
21,000	42,000	.001400	.000050	-----	-----	
21,500	43,000	.001450	.000050	-----	-----	
22,000	44,000	.001500	.000050	-----	-----	
22,500	45,000	.001550	.000050	.000100	.000050	
23,000	46,000	.001550	0.	-----	-----	
23,500	47,000	.001600	.000050	-----	-----	
24,000	48,000	.001650	.000050	-----	-----	
24,500	49,000	.001750	.000100	-----	-----	
25,000	50,000	.001750	0.	.000200	.000100	Elastic limit.
25,500	51,000	.001950	.000200	-----	-----	
26,000	52,000	.002150	.000200	-----	-----	
26,500	53,000	.002600	.000450	-----	-----	
27,000	54,000	.003350	.000750	-----	-----	
27,500	55,000	.004450	.001100	.002700	.002500	
28,000	56,000	.005500	.001050	-----	-----	
28,500	57,000	.006500	.001000	-----	-----	
29,000	58,000	.007600	.001100	-----	-----	
29,500	59,000	.008250	.000650	-----	-----	
30,000	60,000	.009750	.001500	.007550	.004850	Ultimate strength.
52,500	105,000	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section pounds .. 50,000
Compression per inch under stress at elastic limit..... inch .. 0.001750
Ultimate strength per square inch of original section pounds .. 105,000
Manner of failure..... triple flexure

No. 2060.

Marks, ^{32 B B₁₈}_{T₁}Diameter, ¹¹/₁₆.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000300	.000100	0.	.....	
4,000	20,000	.000500	.000200	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000850	.000200	0.	.....	
7,000	35,000	.000950	.000100	0.	.....	
8,000	40,000	.001100	.000150	0.	.....	
9,000	45,000	.001300	.000200	0.	.....	
9,200	46,000	.001350	.000050			Elastic limit.
9,400	47,000	.001350	0.	.....	.....	
9,600	48,000	.001400	.000050	.....	.....	
9,800	49,000	.001400	0.	.....	.....	
10,000	50,000	.001450	.000050	0.	.....	
10,200	51,000	.001550	.000100	.....	.....	
10,400	52,000	.001600	.000050	.....	.....	
10,600	53,000	.001600	0.	.....	.....	
10,800	54,000	.001850	.000250	.....	.....	
11,000	55,000	.002350	.000500			Tensile strength.
11,200	56,000	.002950	.000600	.....	.....	
11,400	57,000	.003600	.000650	.....	.....	
11,600	58,000	.004250	.000650	.....	.....	
11,800	59,000	.004850	.000600	.....	.....	
12,000	60,000	.005400	.000550	.....	.....	
12,400	62,000	.007200	.001800	.....	.....	
12,800	64,000	.008600	.001400	.....	.....	
13,200	66,000	.010150	.001550	.....	.....	
13,600	68,000	.011800	.001650	.....	.....	
14,000	70,000	.013150	.001350			Tensile strength.
14,400	72,000	.015000	.001850	.....	.....	
14,800	74,000	.016600	.001600	.....	.....	
15,200	76,000	.018350	.001750	.....	.....	
15,600	78,000	.020350	.002000	.....	.....	
16,000	80,000	.022750	.002400	.....	.....	
16,400	82,000	.025050	.002300	.....	.....	
16,800	84,000	.027500	.002450	.....	.....	
17,200	86,000	.030000	.002500	.....	.....	
17,600	88,000	.033050	.003050	.....	.....	
18,000	90,000	.036550	.003500			Tensile strength.
18,400	92,000	.040500	.003950	.....	.....	
18,800	94,000	.045000	.004500	.....	.....	
19,200	96,000	.050000	.005000	.....	.....	
19,600	98,000	.057300	.007300	.....	.....	
20,000	100,000	.066250	.008950	.....	.....	
20,400	102,000	.0900	.023750	.....	.....	
20,620	103,100	.1150	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	103,100
Elastic limit per square inch of original section	do...	53,000
Elongation per inch after rupture	inch..	0.1800
Elongation per inch under strain at elastic limit	do...	.001600
Reduction in diameter at point of rupture	do...	.095
Reduction in area after rupture, per centum of original section		34.0
Position of rupture	"1 from middle of stem	
Character of broken surface	granular; dull eccentric spot	
Elongation of inch sections	".22*, ".14	

No. 591.

Marks, $\frac{32}{T_2} B_{18}$

Length, 3".998.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	-----	
5,000	10,000	.000250	.000150	0.	-----	
7,500	15,000	.000400	.000150	0.	-----	
10,000	20,000	.000550	.000150	0.	-----	
12,500	25,000	.000750	.000200	0.	-----	
15,000	30,000	.000900	.000150	0.	-----	
17,500	35,000	.001100	.000200	.000100	.000100	
20,000	40,000	.001300	.000200	.000100	0.	
22,500	45,000	.001500	.000200	.000150	.000050	
25,000	50,000	.001650	.000150	.000150	0.	
25,500	51,000	.001750	.000100	-----	-----	
26,000	52,000	.001750	0.	-----	-----	
26,500	53,000	.001750	0.	-----	-----	
27,000	54,000	.001800	.000050	-----	-----	
27,500	55,000	.001900	.000100	.000150	0.	
28,000	56,000	.001800	.000100	-----	-----	
28,500	57,000	.001800	0.	-----	-----	
29,000	58,000	.001800	0.	-----	-----	
29,500	59,000	.001750	.000050	-----	-----	Elastic limit.
30,000	60,000	.001800	.000050	— .000100	— .000250	
30,500	61,000	.002000	.000200	-----	-----	
31,000	62,000	.002300	.000300	-----	-----	
31,500	63,000	.002600	.000300	-----	-----	
32,000	64,000	.002950	.000350	-----	-----	
32,500	65,000	.003350	.000400	.001250	.001350	
33,000	66,000	.003850	.000500	-----	-----	
33,500	67,000	.004250	.000400	-----	-----	
34,000	68,000	.004900	.000650	-----	-----	
34,500	69,000	.005500	.000600	-----	-----	Ultimate strength.
35,000	70,000	.006300	.000800	.004000	.002750	
55,400	110,800	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section pounds... 60,000
 Compression per inch under stress at elastic limit..... inch... 0.001800
 Ultimate strength per square inch of original section..... pounds... 110,800
 Manner of failure..... triple flexure

No. 2072.

Marks, ^{32 B B₁₉}_{T₁}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000350	.000200	0.	-----	
3,000	15,000	.000550	.000200	0.	-----	
4,000	20,000	.000800	.000250	0.	-----	
5,000	25,000	.000950	.000150	0.	-----	
6,000	30,000	.001150	.000200	0.	-----	
7,000	35,000	.001300	.000150	0.	-----	
8,000	40,000	.001450	.000150	0.	-----	
9,000	45,000	.001650	.000200	.000050	.000050	
9,200	46,000	.001700	.000050	-----	-----	Elastic limit.
9,400	47,000	.001700	0.	-----	-----	
9,600	48,000	.001750	.000050	-----	-----	
9,800	49,000	.001800	.000050	-----	-----	
10,000	50,000	.001800	0.	.000050	0.	
10,200	51,000	.001850	.000050	-----	-----	
10,400	52,000	.001900	.000050	-----	-----	
10,600	53,000	.002050	.000150	-----	-----	
10,800	54,000	.002350	.000300	-----	-----	
11,000	55,000	.002800	.000450	-----	-----	
11,200	56,000	.003300	.000500	-----	-----	
11,400	57,000	.003850	.000550	-----	-----	
11,600	58,000	.004600	.000750	-----	-----	
11,800	59,000	.005300	.000700	-----	-----	
12,000	60,000	.006200	.000900	-----	-----	
12,400	62,000	.007750	.001550	-----	-----	
12,800	64,000	.009250	.001500	-----	-----	
13,200	66,000	.010750	.001500	-----	-----	
13,600	68,000	.012700	.001950	-----	-----	
14,000	70,000	.014700	.002000	-----	-----	
14,400	72,000	.016200	.001500	-----	-----	Tensile strength.
14,800	74,000	.018250	.002050	-----	-----	
15,200	76,000	.020250	.002000	-----	-----	
15,600	78,000	.022550	.002300	-----	-----	
16,000	80,000	.025100	.002550	-----	-----	
16,400	82,000	.027600	.002500	-----	-----	
16,800	84,000	.031050	.003450	-----	-----	
17,200	86,000	.034100	.003050	-----	-----	
17,600	88,000	.038000	.003900	-----	-----	
18,000	90,000	.042050	.004050	-----	-----	
18,400	92,000	.047500	.005450	-----	-----	
18,800	94,000	.054650	.007150	-----	-----	
19,200	96,000	.062200	.007550	-----	-----	
19,600	98,000	.0850	.0228	-----	-----	
19,980	99,900	.1200	.0350	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	99,900
Elastic limit per square inch of original section	do...	52,000
Elongation per inch after rupture	inch..	0.1956
Elongation per inch under strain at elastic limit	do...	.001900
Reduction in diameter at point of rupture	do...	.095
Reduction in area after rupture, per centum of original section		34.0
Position of rupture	".45 from middle of stem	
Character of broken surface	granular; dull center	
Elongation of inch sections	".27*, ".12	

No. 604.

Marks, ^{32 B B₁₉}
_{T₂}

Length, 3'' .997.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000350	.000050	0.	.....	
10,000	20,000	.000600	.000250	0.	.....	
12,500	25,000	.000750	.000150	0.	.....	
15,000	30,000	.000900	.000150	0.	.....	
17,500	35,000	.001100	.000200	0.	.....	
20,000	40,000	.001250	.000150	0.	.....	
22,500	45,000	.001450	.000200	0.	.....	
23,000	46,000	.001500	.000050	.....	.....	
23,500	47,000	.001500	0.	.....	.....	
24,000	48,000	.001500	0.	.....	.....	
24,500	49,000	.021550	.000050	.....	.....	
25,000	50,000	.001600	.000050	0.	.....	
25,500	51,000	.001600	0.	.....	.....	
26,000	52,000	.001650	.000050	.....	.....	
26,500	53,000	.001700	.000050	.....	.....	
27,000	54,000	.001750	.000050	.....	.....	Elastic limit.
27,500	55,000	.001550	— .000200	— .000400	— .000400	
28,000	56,000	.001500	— .000050	.....	.....	
28,500	57,000	.001450	— .000050	.....	.....	
29,000	58,000	.001250	— .000200	.....	.....	
29,500	59,000	.001100	— .000150	.....	.....	
30,000	60,000	.001100	0.	— .000800	— .000400	
30,500	61,000	.001300	.000200	.....	.....	
31,000	62,000	.001400	.000100	.....	.....	
31,500	63,000	.001550	.000150	.....	.....	
32,000	64,000	.001800	.000250	.....	.....	
32,500	65,000	.002250	.000450	.000150	.000950	
33,000	66,000	.002750	.000500	.....	.....	
33,500	67,000	.003250	.000500	.....	.....	
34,000	68,000	.003850	.000600	.....	.....	
34,500	69,000	.004650	.000800	.....	.....	
35,000	70,000	.005150	.000500	.002800	.002650	
52,500	105,000	.....	.....	.....	.....	Ultimate strength.

General summary.

Elastic limit per square inch of original section pounds.. 54,000
 Compression per inch under stress at elastic limit inch.. 0.001750
 Ultimate strength per square inch of original section pounds.. 105,000
 Manner of failure triple flexure

No. 2062.

Marks, $^{32}B B_{20}$
 T_1

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000400	.000050	0.	.....	
5,000	25,000	.000650	.000250	0.	.....	
6,000	30,000	.000750	.000100	0.	.....	
7,000	35,000	.000950	.000200	0.	.....	
8,000	40,000	.001150	.000200	0.	.....	
9,000	45,000	.001300	.000150	0.	.....	
9,200	46,000	.001350	.000050	.....	.....	
9,400	47,000	.001400	.000050			Elastic limit.
9,600	48,000	.001500	.000100	.....	.....	
9,800	49,000	.001650	.000150	.....	.....	
10,000	50,000	.002100	.000450	.....	.....	
10,200	51,700	.002400	.000300	.....	.....	
10,400	52,000	.002900	.000500	.....	.....	
10,600	53,000	.003400	.000500	.....	.....	
10,800	54,000	.003850	.000450	.....	.....	
11,000	55,000	.004550	.000700	.....	.....	
11,200	56,000	.005100	.000550	.....	.....	
11,400	57,000	.006150	.001050	.....	.....	
11,600	58,000	.006800	.000650	.....	.....	
11,800	59,000	.007600	.000800	.....	.....	
12,000	60,000	.008400	.000800	.....	.....	
12,400	62,000	.009950	.001550	.....	.....	
12,800	64,000	.011500	.001550	.....	.....	
13,200	66,000	.013500	.002000	.....	.....	
13,600	68,000	.015000	.001500	.....	.....	
14,000	70,000	.016850	.001850	.....	.....	
14,400	72,000	.019100	.002250	.....	.....	
14,800	74,000	.021200	.002100	.....	.....	
15,200	76,000	.023500	.002300	.....	.....	
15,600	78,000	.025700	.002200	.....	.....	
16,000	80,000	.028750	.003050	.....	.....	
16,400	82,000	.031750	.003000	.....	.....	
16,800	84,000	.034700	.002950	.....	.....	
17,200	86,000	.038500	.003800	.....	.....	
17,600	88,000	.043200	.004700	.....	.....	
18,000	90,000	.049000	.005800	.....	.....	
18,400	92,000	.055500	.006500	.....	.....	
18,800	94,000	.064800	.009300	.....	.....	
19,200	96,000	.0800	.0152	.....	.....	
19,580	97,900	.1100	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	97,900
Elastic limit per square inch of original section.....	do..	47,000
Elongation per inch after rupture.....	inch..	0.1650
Elongation per inch under strain at elastic limit.....	do..	.001400
Reduction in diameter at point of rupture.....	do..	.085
Reduction in area after rupture, per centum of original section.....	.....	30.7
Position of rupture.....	.....	".46 from neck
Character of broken surface.....	granular; dull eccentric spot	
Elongation of inch sections.....	.....	".23*, ".10

H. Ex. 31—30

No. 593.

Marks, $^{32}B\ B_{20}$
 T_2

Length, 3'' .993.

Diameter, '' .799.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000700	.000150	0.	.....	
15,000	30,000	.000850	.000150	0.	.....	
17,500	35,000	.001000	.000150	0.	.....	
20,000	40,000	.001150	.000150	0.	.....	
20,500	41,000	.001200	.000050	.....	.....	
21,000	42,000	.001250	.000050	.....	.....	
21,500	43,000	.001250	0.	.....	.....	
22,000	44,000	.001250	0.	.....	.....	
22,500	45,000	.001300	.000050	.000050	.000050	Elastic limit.
23,000	46,000	.001500	.000200	.....	.....	
23,500	47,000	.001800	.000300	.....	.....	
24,000	48,000	.002150	.000350	.....	.....	
24,500	49,000	.002550	.000400	.....	.....	
25,000	50,000	.003000	.000450	.001400	.001350	
25,500	51,000	.003450	.000450	.....	.....	
26,000	52,000	.003800	.000350	.....	.....	
26,500	53,000	.004250	.000450	.....	.....	
27,000	54,000	.004700	.000450	.....	.....	
27,500	55,000	.005150	.000450	.003250	.001850	Ultimate strength.
50,700	101,400	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 45,900
 Compression per inch under stress at elastic limit inch.. 0.001300
 Ultimate strength per square inch of original section pounds.. 101,400
 Manner of failure triple flexure

No. 2073.

Marks, $^{32}B B_{21}$
 T_1 Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000300	.000100	0.	.....	
4,000	20,000	.000450	.000150	0.	.....	
5,000	25,000	.000650	.000200	0.	.....	
6,000	30,000	.000850	.000200	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001200	.000200	0.	.....	
9,000	45,000	.001300	.000100	0.	.....	
9,200	46,000	.001350	.000050	.....	.....	
9,400	47,000	.001450	.000100	.....	.....	
9,600	48,000	.001500	.000050	.....	.....	
9,800	49,000	.001550	.000050			Elastic limit.
10,000	50,000	.001650	.000100	.000100	.000100	
10,200	51,000	.002000	.000350	.....	.....	
10,400	52,000	.002450	.000450	.....	.....	
10,600	53,000	.002700	.000250	.....	.....	
10,800	54,000	.003100	.000400	.....	.....	
11,000	55,000	.003550	.000450	.....	.....	
11,200	56,000	.004100	.000550	.....	.....	
11,400	57,000	.004650	.000550	.....	.....	
11,600	58,000	.005300	.000650	.....	.....	
11,800	59,000	.005950	.000650	.....	.....	
12,000	60,000	.006850	.000900	.....	.....	
12,400	62,000	.008250	.001400	.....	.....	
12,800	64,000	.010100	.001850	.....	.....	
13,200	66,000	.011650	.001550	.....	.....	
13,600	68,000	.012900	.001250	.....	.....	
14,000	70,000	.014750	.001850	.....	.....	
14,400	72,000	.016550	.001800	.....	.....	
14,800	74,000	.018100	.001550	.....	.....	
15,200	76,000	.020000	.001900	.....	.....	
15,600	78,000	.022550	.002550	.....	.....	
16,000	80,000	.024550	.002000	.....	.....	
16,400	82,000	.027100	.002550	.....	.....	
16,800	84,000	.029650	.002550	.....	.....	
17,200	86,000	.032500	.002850	.....	.....	
17,600	88,000	.035600	.003100	.....	.....	
18,000	90,000	.039550	.003950	.....	.....	
18,400	92,000	.043750	.004200	.....	.....	
18,800	94,000	.048500	.004750	.....	.....	
19,200	96,000	.055000	.006500	.....	.....	
19,600	98,000	.063250	.008250	.....	.....	
20,000	100,000	.0850	.021750			Tensile strength.
20,310	101,550	.1100	.0250	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	101,550
Elastic limit per square inch of original section	do...	49,000
Elongation per inch after rupture	inch..	0.1600
Elongation per inch under strain at elastic limit	do...	.001550
Reduction in diameter at point of rupture	do...	.095
Reduction in area after rupture, per centum of original section		34.0
Position of rupture	"	.45 from neck
Character of broken surface	granular; dull eccentric spot	
Elongation of inch sections	"	.23*, ".09

No. 605.

Marks, ^{32 B B₂₁}_{T₂}

Length, 3'''.995.

Diameter, '''.798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	-----	
5,000	10,000	.000300	.000150	0.	-----	
7,500	15,000	.000450	.000150	0.	-----	
10,000	20,000	.000600	.000150	0.	-----	
12,500	25,000	.000750	.000150	0.	-----	
15,000	30,000	.000900	.000150	0.	-----	
17,500	35,000	.001100	.000200	0.	-----	
20,000	40,000	.001250	.000150	0.	-----	
22,500	45,000	.001500	.000250	0.	-----	
23,000	46,000	.001500	0.	-----	-----	
23,500	47,000	.001550	.000050	-----	-----	
24,000	48,000	.001550	0.	-----	-----	
24,500	49,000	.001600	.000050	-----	-----	
25,000	50,000	.001700	.000100	.000100	.000100	Elastic limit.
25,500	51,000	.001900	.000200	-----	-----	
26,000	52,000	.002200	.000300	-----	-----	
26,500	53,000	.002550	.000350	-----	-----	
27,000	54,000	.003050	.000500	-----	-----	
27,500	55,000	.003600	.000550	.001850	.001750	
28,000	56,000	.004350	.000750	-----	-----	
28,500	57,000	.005300	.000950	-----	-----	
29,000	58,000	.006300	.001000	-----	-----	
29,500	59,000	.007150	.000850	-----	-----	
30,000	60,000	.008000	.000850	.005850	.004000	Ultimate strength.
53,900	107,800	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section pounds.. 50,000
 Compression per inch under stress at elastic limit inch... 0.001700
 Ultimate strength per square inch of original section pounds.. 107,800
 Manner of failure triple flexure

No. 2063.

Marks, ^{32 B B₂₂}_{T₁}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000400	.000100	0.	.....	
4,000	20,000	.000550	.000150	0.	.....	
5,000	25,000	.000650	.000100	0.	.....	
6,000	30,000	.000900	.000250	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001250	.000200	0.	.....	
9,000	45,000	.001450	.000200	0.	.....	
9,200	46,000	.001450	0.			Elastic limit.
9,400	47,000	.001500	.000050	.....	.....	
9,600	48,000	.001550	.000050	.....	.....	
9,800	49,000	.001600	.000050	.....	.....	
10,000	50,000	.001700	.000100	.....	.....	
10,200	51,000	.001900	.000200	.....	.....	
10,400	52,000	.002250	.000350	.....	.....	
10,600	53,000	.002550	.000300	.....	.....	
10,800	54,000	.003250	.000700	.....	.....	
11,000	55,000	.004100	.000850	.....	.....	
11,200	56,000	.004700	.000600	.....	.....	
11,400	57,000	.005400	.000700	.....	.....	
11,600	58,000	.006150	.000750	.....	.....	
11,800	59,000	.006950	.000800	.....	.....	
12,000	60,000	.007600	.006500	.....	.....	
12,400	62,000	.009250	.001650	.....	.....	
12,800	64,000	.010650	.001400	.....	.....	
13,200	66,000	.012450	.001800	.....	.....	
13,600	68,000	.014100	.001650	.....	.....	
14,000	70,000	.015800	.001700	.....	.....	
14,400	72,000	.017700	.001900	.....	.....	
14,800	74,000	.019600	.001900	.....	.....	
15,200	76,000	.021700	.002100	.....	.....	
15,600	78,000	.023900	.002200	.....	.....	
16,000	80,000	.026500	.002600	.....	.....	
16,400	82,000	.029050	.002550	.....	.....	
16,800	84,000	.031850	.002800	.....	.....	
17,200	86,000	.035150	.003300	.....	.....	
17,600	88,000	.038600	.003450	.....	.....	
18,000	90,000	.043250	.004650	.....	.....	
18,400	92,000	.048750	.005500	.....	.....	
18,800	94,000	.054750	.006000	.....	.....	
19,200	96,000	.065750	.001100	.....	.....	
19,600	98,000	.0800	.014250			Tensile strength.
19,870	99,350	.1150	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	99,350
Elastic limit per square inch of original section.....	do...	50,000
Elongation per inch after rupture.....	inch..	0.1800
Elongation per inch under strain at elastic limit.....	do...	0.01700
Reduction in diameter at point of rupture.....	do...	.095
Reduction in area after rupture, per centum of original section.....		34.0
Position of rupture.....	" .55 from neck	
Character of broken surface.....	granular; dull center	
Elongation of inch sections.....	".26*, ".10	

No. 594.

Marks, $\frac{32}{T_2} B B_{22}$

Length, 3'' .996.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	-----	
5,000	10,000	.000250	.000150	0.	-----	
7,500	15,000	.000400	.000150	0.	-----	
10,000	20,000	.000500	.000100	0.	-----	
12,500	25,000	.000650	.000150	0.	-----	
15,000	30,000	.000850	.000200	0.	-----	
17,500	35,000	.001000	.000150	— .000050	— .000050	
20,000	40,000	.001150	.002150	— .000050	0.	
22,500	45,000	.001300	.000150	— .000050	0.	
23,000	46,000	.001300	0.	-----	-----	
23,500	47,000	.001350	.000050	-----	-----	
24,000	48,000	.001350	0.	-----	-----	
24,500	49,000	.001400	.000050	-----	-----	
25,000	50,000	.001450	.000050	— .000100	— .000050	
25,500	51,000	.001450	0.	-----	-----	
26,000	52,000	.001500	.000050	-----	-----	
26,500	53,000	.001500	0.	-----	-----	Elastic limit.
27,000	54,000	.001650	.000150	-----	-----	
27,500	55,000	.001950	.000300	.000350	.000450	
28,000	56,000	.002250	.000300	-----	-----	
28,500	57,000	.002500	.000250	-----	-----	
29,000	58,000	.002950	.000450	-----	-----	
29,500	59,000	.003300	.000350	-----	-----	
30,000	60,000	.003800	.000500	.002000	.001650	
30,500	61,000	.004450	.000650	-----	-----	
31,000	62,000	.004900	.000450	-----	-----	
31,500	63,000	.005500	.000600	-----	-----	Ultimate strength.
32,000	64,000	.006100	.000600	-----	-----	
32,500	65,000	.006800	.000700	.004650	.002650	
53,500	107,000	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section pounds.. 53,000
 Compression per inch under stress at elastic limit inch.. 0.001500
 Ultimate strength per square inch of original section pounds.. 107,000
 Manner of failure triple flexure

No. 2074.

Marks $^{32}B_{23}$
 T_1

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000200	.000100	0.	-----	
3,000	15,000	.000400	.000200	0.	-----	
4,000	20,000	.000600	.000200	0.	-----	
5,000	25,000	.000800	.000200	0.	-----	
6,000	30,000	.000950	.000150	0.	-----	
7,000	35,000	.001050	.000100	0.	-----	
8,000	40,000	.001300	.000250	0.	-----	
9,000	45,000	.001550	.000250	0.	-----	
9,200	46,000	.001550	0.	-----	-----	
9,400	47,000	.001650	.000100	-----	-----	Elastic limit.
9,600	48,000	.001850	.000200	-----	-----	
9,800	49,000	.002150	.000300	-----	-----	
10,000	50,000	.002550	.000400	-----	-----	
10,200	51,000	.003050	.000500	-----	-----	
10,400	52,000	.003500	.000450	-----	-----	
10,600	53,000	.004050	.000550	-----	-----	
10,800	54,000	.004550	.000500	-----	-----	
11,000	55,000	.005050	.000500	-----	-----	
11,200	56,000	.005750	.000700	-----	-----	
11,400	57,000	.006650	.000900	-----	-----	
11,600	58,000	.007300	.000650	-----	-----	
11,800	59,000	.007850	.000550	-----	-----	
12,000	60,000	.008700	.000850	-----	-----	
12,400	62,000	.010150	.001450	-----	-----	
12,800	64,000	.011650	.001500	-----	-----	
13,200	66,000	.013250	.001600	-----	-----	
13,600	68,000	.015150	.001900	-----	-----	
14,000	70,000	.017000	.001850	-----	-----	
14,400	72,000	.018750	.001750	-----	-----	
14,800	74,000	.020650	.001900	-----	-----	
15,200	76,000	.023050	.002400	-----	-----	
15,600	78,000	.025600	.002550	-----	-----	
16,000	80,000	.028550	.002950	-----	-----	
16,400	82,000	.031000	.002450	-----	-----	
16,800	84,000	.033750	.002750	-----	-----	
17,200	86,000	.037000	.003250	-----	-----	
17,600	88,000	.040600	.003600	-----	-----	
18,000	90,000	.045150	.004550	-----	-----	
18,400	92,000	.051050	.005900	-----	-----	
18,800	94,000	.057650	.006600	-----	-----	
19,200	96,000	.0700	.012350	-----	-----	
19,600	98,000	.0900	.0200	-----	-----	
19,830	99,150	.1150	.0250	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	99,150
Elastic limit per square inch of original section	do...	47,000
Elongation per inch after rupture	inch..	0.1550
Elongation per inch under strain at elastic limit	do...	.001650
Reduction in diameter at point of rupture	do ..	.085
Reduction in area after rupture, per centum of original section		30.7
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	granular; dull center	
Elongation of inch sections	".22", ".09	

No. 606.

Marks, $\frac{32}{T_2}$ B B₂₃Length, 3''⁹⁹⁵.Diameter, ''⁷⁹⁸.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000200	.000100	0.	.....	
7,500	15,000	.000300	.000100	0.	.....	
10,000	20,000	.000400	.000100	0.	.....	
12,500	25,000	.000600	.000200	0.	.....	
15,000	30,000	.000700	.000100	0.	.....	
17,500	35,000	.000850	.000150	0.	.....	
20,000	40,000	.001000	.000150	— .000050	— .000050	
20,500	41,000	.001000	0.	.....	.....	
21,000	42,000	.001000	0.	.....	.....	
21,500	43,000	.001050	.000050	.....	.....	
22,000	44,000	.001100	.000050	.....	.....	
22,500	45,000	.001100	0.	— .000100	— .000050	
23,000	46,000	.001100	0.	.....	.....	
23,500	47,000	.001050	.000050			Elastic limit.
24,000	48,000	.002150	.001100	.....	.....	
24,500	49,000	.003000	.000850	.....	.....	
25,000	50,000	.003950	.000950	.....	.....	
51,800	103,600					Ultimate strength.

General summary.

Elastic limit per square inch of original section.....pounds... 47,000
 Compression per inch under stress at elastic limit.....inch... 0.001050
 Ultimate strength per square inch of original section.....pounds... 103,600
 Manner of failure.....triple flexure

No. 2068.

Marks, $^{32}B \cdot B_{24}$
 T_1

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001200	.000250	0.	.....	
8,000	40,000	.001300	.000100	0.	.....	
9,000	45,000	.001500	.000200	0.	.....	
9,200	46,000	.001550	.000050	.....	.....	
9,400	47,000	.001600	.000050	.....	.....	
9,600	48,000	.001650	.000050	.....	.....	
9,800	49,000	.001700	.000050	.....	.....	Elastic limit.
10,000	50,000	.002050	.000350	.....	.....	
10,200	51,000	.002400	.000350	.....	.....	
10,400	52,000	.002900	.000500	.....	.....	
10,600	53,000	.003400	.000500	.....	.....	
10,800	54,000	.003900	.000500	.....	.....	
11,000	55,000	.004500	.000600	.....	.....	
11,200	56,000	.005350	.000850	.....	.....	
11,400	57,000	.006000	.000650	.....	.....	
11,600	58,000	.007100	.001100	.....	.....	
11,800	59,000	.007700	.000600	.....	.....	
12,000	60,000	.008600	.000900	.....	.....	
12,400	62,000	.010000	.001400	.....	.....	
12,800	64,000	.011250	.001250	.....	.....	
13,200	66,000	.013000	.001750	.....	.....	
13,600	68,000	.014800	.001800	.....	.....	
14,000	70,000	.016450	.001650	.....	.....	
14,400	72,000	.018400	.001950	.....	.....	
14,800	74,000	.020350	.001950	.....	.....	
15,200	76,000	.022650	.002300	.....	.....	
15,600	78,000	.024850	.002200	.....	.....	
16,000	80,000	.027700	.002850	.....	.....	
16,400	82,000	.030650	.002950	.....	.....	
16,800	84,000	.033500	.002850	.....	.....	
17,200	86,000	.037250	.003700	.....	.....	
17,600	88,000	.041050	.003850	.....	.....	
18,000	90,000	.047000	.005950	.....	.....	
18,400	92,000	.052250	.005250	.....	.....	
18,800	94,000	.060500	.008250	.....	.....	
19,200	96,000	.0700	.0095	.....	.....	
19,600	98,000	.0950	.0250	.....	.....	
19,740	98,700	.1350	.0400	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	98,700
Elastic limit per square inch of original section.....	do...	49,000
Elongation per inch after rupture.....	inch..	0.2050
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do...	0.85
Reduction in area after rupture, per centum of original section.....		30.7
Position of rupture.....	"4 from neck	
Character of broken surface.....	granular; dull center	
Elongation of inch sections.....	"24", ".17	

No. 600.

Marks, ^{32 B B₂₄}_{T₂}

Length, 3".998.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000450	.000150	0.	.....	
10,000	20,000	.000600	.000150	0.	.....	
12,500	25,000	.000750	.000150	0.	.....	
15,000	30,000	.000950	.000200	0.	.....	
17,500	35,000	.001150	.000200	0.	.....	
20,000	40,000	.001300	.000150	.000050	.000050	
20,500	41,000	.001350	.000050	.....	.....	
21,000	42,000	.001400	.000050	.....	.....	
21,500	43,000	.001450	.000050	.....	.....	
22,000	44,000	.001500	.000050	.....	.....	
22,500	45,000	.001500	0	.000100	.000050	
23,000	46,000	.001500	0	.....	.....	
23,500	47,000	.001550	.000050	.....	.....	
24,000	48,000	.001600	.000050	.....	.....	
24,500	49,000	.001650	.000050	.....	.....	
25,000	50,000	.001650	0	.000100	0	Elastic limit.
25,500	51,000	.001750	.000100	.....	.....	
26,000	52,000	.002000	.000250	.....	.....	
26,500	53,000	.002600	.000600	.....	.....	
27,000	54,000	.003300	.000700	.....	.....	
27,500	55,000	.003850	.000550	.002100	.002000	
28,000	56,000	.004500	.000650	.....	.....	
28,500	57,000	.005250	.000750	.....	.....	
29,000	58,000	.006000	.000750	.....	.....	
29,500	59,000	.006750	.000750	.....	.....	
30,000	60,000	.007750	.001000	.005550	.003450	Ultimate strength
52,700	105,400	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 50,000
 Compression per inch under stress at elastic limit inch.. 0.001650
 Ultimate strength per square inch of original section pounds.. 105,400
 Manner of failure triple flexure

No. 2045.

Marks, ^{32 B B₂₅}_{T₁}

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000200	.000100	0.	-----	
3,000	15,000	.000300	.000100	0.	-----	
4,000	20,000	.000450	.000150	0.	-----	
5,000	25,000	.000650	.000200	0.	-----	
6,000	30,000	.000800	.000150	0.	-----	
7,000	35,000	.000950	.000150	0.	-----	
8,000	40,000	.001100	.000150	0.	-----	
8,800	44,000	.001150	.000050			Elastic limit.
9,000	45,000	.001550	.000400	.000150	.000150	
9,200	46,000	.002300	.000750			
9,400	47,000	.003150	.000850			
9,600	48,000	.003600	.000450			
9,800	49,000	.004150	.000550			
10,000	50,000	.004900	.000750	.003150	.003000	
10,200	51,000	.005500	.000600			
10,400	52,000	.006500	.001000			
10,600	53,000	.007100	.000600			
10,800	54,000	.007600	.000500			
11,000	55,000	.008400	.000800			
11,200	56,000	.009200	.000800			
11,400	57,000	.009900	.000700			
11,600	58,000	.010650	.000750			
11,800	59,000	.011550	.000900			
12,000	60,000	.012500	.000950			
12,400	62,000	.014200	.001700			
12,800	64,000	.015650	.001450			
13,200	66,000	.017450	.001800			
13,600	68,000	.019500	.002050			
14,000	70,000	.021500	.002000			
14,400	72,000	.024000	.002500			
14,800	74,000	.026100	.002100			
15,200	76,000	.028850	.002750			
15,600	78,000	.031450	.002600			
16,000	80,000	.034550	.003100			
16,400	82,000	.038200	.003650			
16,800	84,000	.042500	.004300			
17,200	86,000	.046850	.004350			
17,600	88,000	.052750	.005900			
18,000	90,000	.060500	.007750			
18,400	92,000	.0650	.0045			
18,800	94,000	.0850	.0200			
19,120	95,600	.1300	.0450			Tensile strength.

General summary.

Specific gravity.....	7.8579
Tensile strength per square inch of original section.....	pounds.. 95,600
Elastic limit per square inch of original section.....	do. 44,000
Elongation per inch after rupture.....	inch... 0.1900
Elongation per inch under strain at elastic limit.....	do. .001150
Reduction in diameter at point of rupture.....	do. .084
Reduction in area after rupture, per centum of original section.....	30.7
Position of rupture.....	$\frac{3}{8}$ inch from middle of stem
Character of broken surface.....	granular; dull center
Elongation of inch sections.....	".25*, ".13

No. 582.

Marks, ^{32 B B₂₅}
_{T₂}Length, 3¹¹.996.Diameter, ¹¹.798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	-----	
5,000	10,000	.000300	.000150	0.	-----	
7,500	15,000	.000350	.000050	0.	-----	
10,000	20,000	.000500	.000150	0.	-----	
12,500	25,000	.000500	0.	-.000100	-.000100	
15,000	30,000	.000650	.000150	-.000100	0.	
17,500	35,000	.000750	.000100	-.000150	-.000050	
20,000	40,000	.000850	.000100	-.000200	-.000050	
20,500	41,000	.000850	0.	-----	-----	
21,000	42,000	.000900	.000050	-----	-----	
21,500	43,000	.000900	0.	-----	-----	
22,000	44,000	.000900	0.	-----	-----	
22,500	45,000	.000900	0.	-.000250	-.000050	
23,000	46,000	.000800	.000100	-----	-----	Elastic limit.
23,500	47,000	.000850	.000050	-----	-----	
24,000	48,000	.001000	.000150	-----	-----	
24,500	49,000	.001250	.000250	-----	-----	
25,000	50,000	.001750	.000500	.000250	.000500	
25,500	51,000	.002050	.000300	-----	-----	
26,000	52,000	.002650	.000600	-----	-----	
26,500	53,000	.003300	.000650	-----	-----	
27,000	54,000	.004000	.000700	-----	-----	
27,500	55,000	.004600	.000600	.002800	.002550	
28,000	56,000	.005300	.000700	-----	-----	
28,500	57,000	.005850	.000550	-----	-----	
29,000	58,000	.006800	.000950	-----	-----	
29,500	59,000	.007600	.000800	-----	-----	
30,000	60,000	.008300	.000700	.006050	.003250	Ultimate strength.
51,500	103,000	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section.....pounds.. 47,000
 Compression per inch under stress at elastic limit.....inch.. 0.000850
 Ultimate strength per square inch of original section.....pounds.. 103,000
 Manner of failure.....triple flexure

[Additional specimens.]

No. 2395.

Marks, $^{32}B_{25}$
 T_3

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001050	.000100	.....	.....	
8,000	40,000	.001200	.000150	.....	.....	
9,000	45,000	.001500	.000300	.....	.....	
10,000	50,000	.001650	.000150	.....	.....	
11,000	55,000	.001800	.000150	.....	.....	
11,200	56,000	.001850	.000050	.....	.....	
11,400	57,000	.001900	.000050	.....	.....	
11,600	58,000	.001900	0.	.....	.....	
11,800	59,000	.001950	.000050	.....	.....	Elastic limit.
12,000	60,000	.002000	.000050	.....	.....	
12,200	61,000	.004700	.002700	.....	.....	
12,400	62,000	.006300	.001600	.....	.....	
12,600	63,000	.007200	.000900	.....	.....	
12,800	64,000	.008300	.001100	.....	.....	
13,000	65,000	.009350	.001050	.....	.....	
13,200	66,000	.010250	.000900	.....	.....	
13,400	67,000	.011250	.001000	.....	.....	
13,600	68,000	.011850	.000600	.....	.....	
13,800	69,000	.012750	.000900	.....	.....	
14,000	70,000	.014000	.001250	.....	.....	
14,400	72,000	.016000	.002000	.....	.....	
14,800	74,000	.017750	.001750	.....	.....	
15,200	76,000	.019750	.002000	.....	.....	
15,600	78,000	.022200	.002450	.....	.....	
16,000	80,000	.024750	.002550	.....	.....	
16,400	82,000	.027500	.002750	.....	.....	
16,800	84,000	.030250	.002750	.....	.....	
17,200	86,000	.033650	.003400	.....	.....	
17,600	88,000	.037500	.003850	.....	.....	
18,000	90,000	.042000	.004500	.....	.....	
18,400	92,000	.047100	.005100	.....	.....	
18,800	94,000	.0550	.0079	.....	.....	
19,200	96,000	.0600	.0050	.....	.....	
19,600	98,000	.0750	.0050	.....	.....	
19,990	99,950	.1200	.0450	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section pounds.. 99,950
 Elastic limit per square inch of original section do... 60,000
 Elongation per inch after rupture inch.. 0.2250
 Elongation per inch under strain at elastic limit do... .002000
 Reduction in diameter at point of rupture do... .125
 Reduction in area after rupture, per centum of original section 43.3
 Position of rupture 1".2 from neck
 Character of broken surface silky
 Elongation of inch sections ".25*, ".20

No. 646.

Marks, ^{32 B B₂₅}_{T₄}Length, 4¹¹.004.Diameter, ¹¹.798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	-----	
5,000	10,000	.000300	.000150	0.	-----	
7,500	15,000	.000450	.000150	0.	-----	
10,000	20,000	.000650	.000200	0.	-----	
12,500	25,000	.000800	.000150	0.	-----	
15,000	30,000	.000950	.000150	0.	-----	
17,500	35,000	.001100	.000150	0.	-----	
20,000	40,000	.001300	.000200	0.	-----	
22,500	45,000	.001450	.000150	0.	-----	
25,000	50,000	.001600	.000150	0.	-----	
25,500	51,000	.001650	.000050	-----	-----	
26,000	52,000	.001700	.000050	-----	-----	
26,500	53,000	.001700	0.	-----	-----	
27,000	54,000	.001750	.000050	-----	-----	
27,500	55,000	.001800	.000050	-----	-----	
28,000	56,000	.001800	0.	-----	-----	
28,500	57,000	.001850	.000050	-----	-----	
29,000	58,000	.001850	0.	-----	-----	
29,500	59,000	.001900	.000050	-----	-----	
30,000	60,000	.001900	0.	-----	-----	Elastic limit.
30,500	61,000	.001950	.000050	-----	-----	
31,000	62,000	.003500	.001550	-----	-----	
31,500	63,000	.003800	.000300	-----	-----	
32,000	64,000	.004050	.000250	-----	-----	
32,500	65,000	.004350	.000200	-----	-----	Ultimate strength.
33,000	66,000	.004750	.000400	-----	-----	
53,160	106,320	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section.....pounds.. 61,000
 Compression per inch under stress at elastic limit.....inch.. 0.001950
 Ultimate strength per square inch of original section.....pounds.. 106,320
 Manner of failure.....triple flexure

SPECIMENS FROM STEEL BASE RINGS

FOR

3".2 STEEL B. L. RIFLES. ·

ALFRED'S FROM STEEL BARBERS

3-3 PATENT IN PENDING

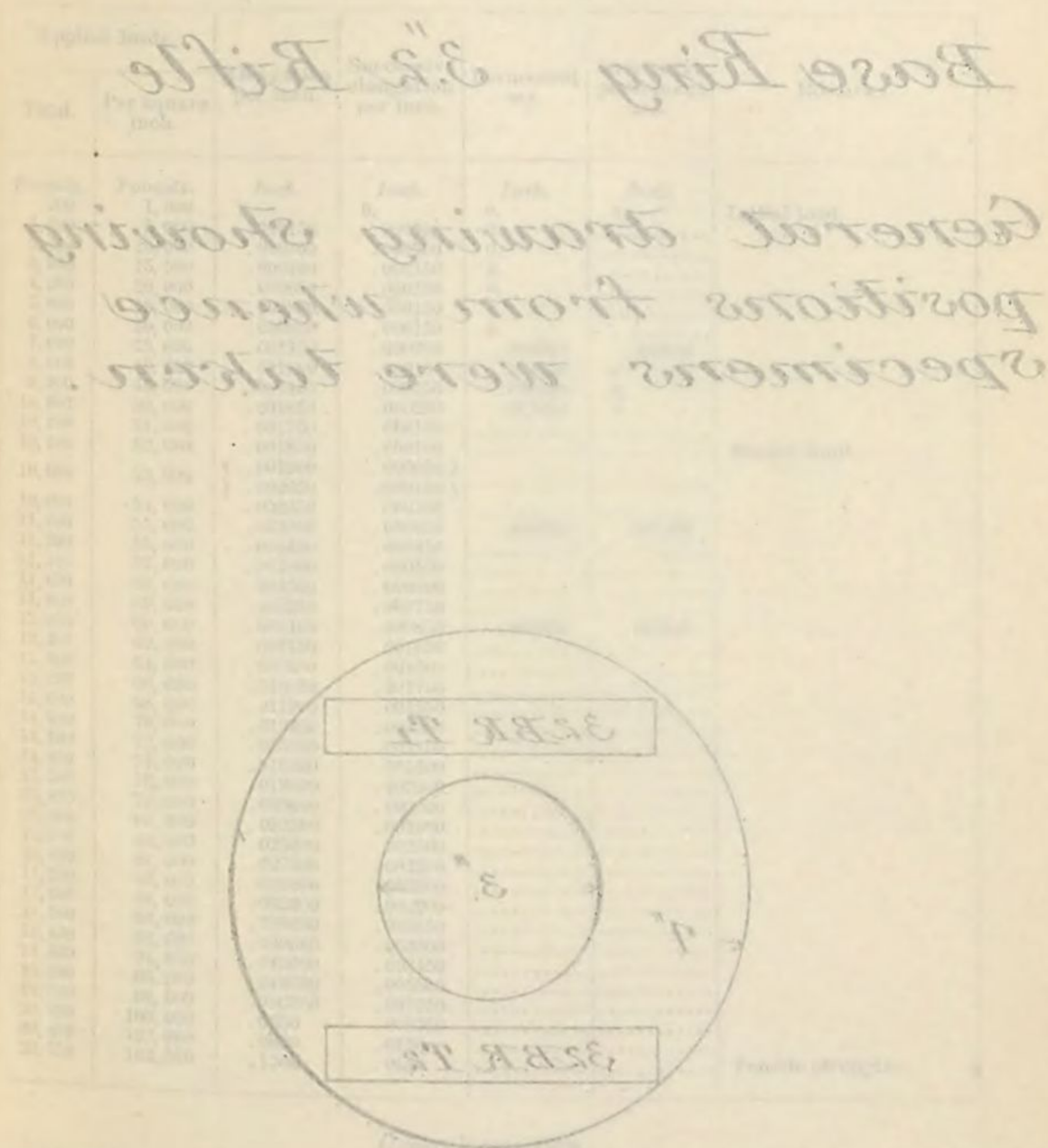
SPECIMENS FROM STEEL BASE RINGS FOR 3" 3 STEEL B. L. RIFLES.

No. 1050.

Marks, $\frac{1}{2}$ 10 10

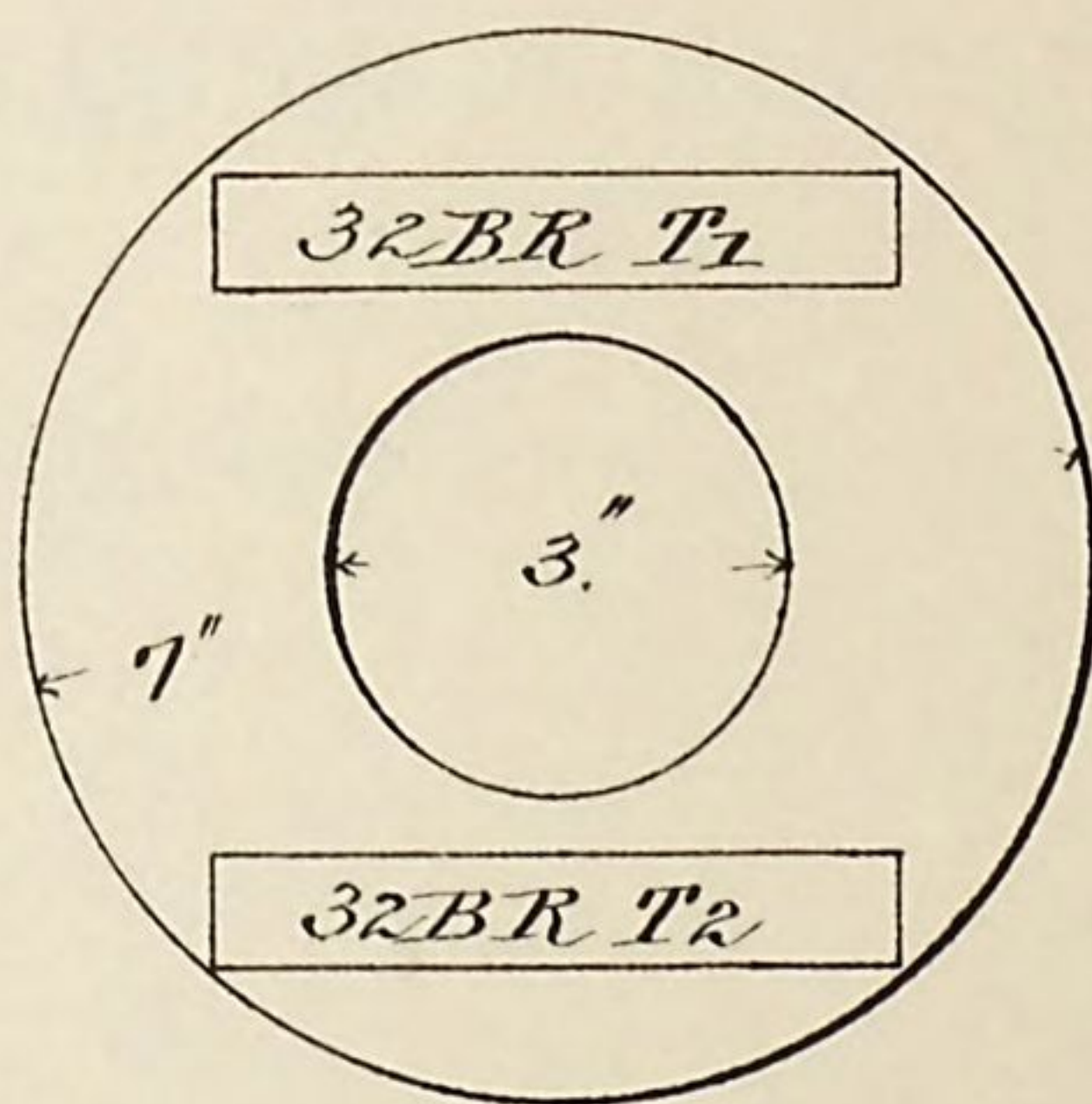
Diameter, $\frac{1}{2}$ 503.

Sectional area, .20 square inch.



Base Ring 3.2 Rifle

*General drawing showing
positions from whence
specimens were taken.*



H Ex 31 49 2

SPECIMENS FROM STEEL BASE RINGS FOR 3".2 STEEL B. L. RIFLES.

No. 1030.

Marks, ^{32 B R₁}_{T₁}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001150	.000200	.000050	.000050	
8,000	40,000	.001300	.000150	.000050	0.	
9,000	45,000	.001450	.000150	.000050	0.	
10,000	50,000	.001650	.000200	.000050	0.	Elastic limit.
10,200	51,000	.001750	.000100	.....	.....	
10,400	52,000	.001850	.000100	.....	.....	
10,600	53,000	{ .001900	.000050 }	.....	.....	
		{ .002050	.000150 }	.....	.....	
10,800	54,000	.002350	.000300	.....	.....	
11,000	55,000	.003000	.000650	.001050	.001000	
11,200	56,000	.003450	.000450	.....	.....	
11,400	57,000	.004000	.000550	.....	.....	
11,600	58,000	.004500	.000500	.....	.....	
11,800	59,000	.005250	.000750			
12,000	60,000	.006100	.000850	.003850	.002800	
12,400	62,000	.007150	.001050	.....	.....	
12,800	64,000	.008650	.001500	.....	.....	
13,200	66,000	.010350	.001700	.....	.....	
13,600	68,000	.011900	.001550	.....	.....	
14,000	70,000	.013250	.001350	.....	.....	
14,400	72,000	.015000	.001750	.....	.....	
14,800	74,000	.016600	.001600	.....	.....	
15,200	76,000	.018600	.002000	.....	.....	
15,600	78,000	.020600	.002000			
16,000	80,000	.022500	.001900	.....	.....	
16,400	82,000	.025000	.002500	.....	.....	
16,800	84,000	.027200	.002200	.....	.....	
17,200	86,000	.030000	.002800	.....	.....	
17,600	88,000	.032900	.002900	.....	.....	
18,000	90,000	.036050	.003150	.....	.....	
18,400	92,000	.039550	.003500	.....	.....	
18,800	94,000	.043000	.003450	.....	.....	
19,200	96,000	.048500	.005500	.....	.....	
19,600	98,000	.056250	.007750			Tensile strength.
20,000	100,000	.0650	.008750	.....	.....	
20,400	102,000	.0800	.0150	.....	.....	
20,710	103,550	.1300	.0500	.....	.....	

General summary.

Specific gravity.....	7.8678
Tensile strength per square inch of original section..... pounds..	103,550
Elastic limit per square inch of original section..... do.....	52,000
Elongation per inch after rupture..... inch..	0.1900
Elongation per inch under strain at elastic limit..... do.....	.001850
Reduction in diameter at point of rupture..... do.....	.085
Reduction in area after rupture, per centum of original section.....	30.7
Position of rupture.....	".7 from neck
Character of broken surface.....	granular; dull center
Elongation of inch sections.....	".26*, ".12

No. 534.

Marks, ³²B R,
_{T₂}Length, 4¹¹/₁₆.48.Diameter, ¹¹/₁₆.798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000050	.000050	0.	.....	
5,000	10,000	.000200	.000150	0.	.....	
7,500	15,000	.000350	.000150	0.	.....	
10,000	20,000	.000500	.000150	0.	.....	
12,500	25,000	.000650	.000150	0.	.....	
15,000	30,000	.000800	.000150	0.	.....	
17,500	35,000	.001000	.000200	0.	.....	
20,000	40,000	.001100	.000100	0.	.....	
22,500	45,000	.001300	.000200	0.	.....	
24,500	49,000	.001400	.000100	.....	.....	
25,000	50,000	.001350	— .000050	— .000100	— .000100	Elastic limit.
25,500	51,000	.001250	— .000100	.....	.....	
26,000	52,000	.001100	— .000150	.....	.....	
26,500	53,000	.000950	— .000150	.....	.....	
27,000	54,000	.000800	— .000150	.....	.....	
27,500	55,000	.000700	— .000100	— .000950	— .000850	
28,000	56,000	.000550	— .000150	.....	.....	
28,500	57,000	.000300	— .000050	.....	.....	
29,000	58,000	.000450	— .000450	.....	.....	
29,500	59,000	.000400	— .000050	.....	.....	
30,000	60,000	.000400	0.	— .001350	— .000400	Ultimate strength.
50,550	101,100	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 49,000
 Compression per inch under stress at elastic limit.....inch.. 0.001400
 Ultimate strength per square inch of original section.....pounds.. 101,100
 Manner of failure.....triple flexure

NOTE.—This specimen deflected convex on the side carrying the micrometer, thus causing an apparent elongation along that line.

No. 1031.

Marks, ^{32 B R_s}
_{T₁}Diameter, ¹¹.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000800	.000050	0.	.....	
7,000	35,000	.000950	.000150	0.	.....	
8,000	40,000	.001100	.000150	0.	.....	
9,000	45,000	.001300	.000200	.000050	.000050	
10,000	50,000	.001550	.000250	.000100	.000050	Elastic limit.
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.001750	.000050	.....	.....	
11,000	55,000	.001800	.000050	.000100	0.	
11,200	56,000	.001800	0.	.....	.....	
11,400	57,000	.001900	.000100	.....	.....	
11,600	58,000	.002100	.000200	.....	.....	
11,800	59,000	.002350	.000250	.....	.....	
12,000	60,000	.002750	.000400	.000750	.000650	
12,400	62,000	.003250	.000500	.....	.....	
12,800	64,000	.004250	.001000	.....	.....	
13,200	66,000	.005800	.001550	.....	.....	
13,600	68,000	.007400	.001600	.....	.....	
14,000	70,000	.008650	.001250	.....	.....	
14,400	72,000	.009450	.000800	.....	.....	
14,800	74,000	.011300	.001850	.....	.....	
15,200	76,000	.012800	.001500	.....	.....	
15,600	78,000	.014250	.001450	.....	.....	
16,000	80,000	.015700	.001450			Tensile strength.
16,400	82,000	.017300	.001600	.....	.....	
16,800	84,000	.019250	.001950	.....	.....	
17,200	86,000	.021200	.001950	.....	.....	
17,600	88,000	.023200	.002000	.....	.....	
18,000	90,000	.025500	.002300	.....	.....	
18,400	92,000	.027850	.002350	.....	.....	
18,800	94,000	.030000	.002150	.....	.....	
19,200	96,000	.033000	.003000	.....	.....	
19,600	98,000	.036150	.003150	.....	.....	
20,000	100,000	.039550	.003400	.....	.....	
20,400	102,000	.0450	.005450	.....	.....	
20,800	104,000	.0500	.0050	.....	.....	
21,200	106,000	.0550	.0050	.....	.....	
21,600	108,000	.0650	.0100	.....	.....	
22,000	110,000	.0800	.0150	.....	.....	
22,100	110,500	.1100	.0360	.....	.....	

General summary.

Specific gravity.....	7.8667
Tensile strength per square inch of original section.....pounds..	110,500
Elastic limit per square inch of original section.....do ..	57,000
Elongation per inch after rupture.....inch..	0.1500
Elongation per inch under strain at elastic limit.....do...	.001900
Reduction in diameter at point of rupture.....do...	.065
Reduction in area after rupture, per centum of original section.....	23.9
Position of rupture.....	" .55 from neck
Character of broken surface.....	granular; dull center
Elongation of inch sections.....	" .20*, ".10

No. 535.

Marks, ^{32 B R_s}
 _{T₂}
Length 4''⁴⁹.
Diameter, ''⁷⁹⁸.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000500	.000200	0.	.....	
10,000	20,000	.000600	.000100	0.	.....	
12,500	25,000	.000750	.000150	0.	.....	
15,000	30,000	.000900	.000150	0.	.....	
17,500	35,000	.001100	.000200	0.	.....	
20,000	40,000	.001250	.000150	0.	.....	
22,500	45,000	.001400	.000150	0.	.....	
25,000	50,000	.001500	.000100	0.	.....	
25,500	51,000	.001550	.000050	.....	.....	
26,000	52,000	.001600	.000050	.....	.....	
26,500	53,000	.001600	0.	.....	.....	
27,000	54,000	.001600	.000050	.....	.....	
27,500	55,000	.001750	.000100	.000050	.000050	
28,000	56,000	.001750	0.	.....	.....	
28,500	57,000	.001800	.000050			Elastic limit.
29,000	58,000	.001950	.000150	.....	.....	
29,500	59,000	.002200	.000250	.....	.....	
30,000	60,000	.002500	.000300	.000050	.000060	
30,500	61,000	.002750	.000250	.....	.....	
31,000	62,000	.003150	.000400	.....	.....	
31,500	63,000	.003550	.000400	.....	.....	
32,000	64,000	.004050	.000500	.....	.....	
32,500	65,000	.004600	.000550	.002550	.001900	Ultimate strength.
54,240	108,480	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 57,000
Compression per inch under stress at elastic limitinch.. 0.001800
Ultimate strength per square inch of original sectionpounds.. 108,480
Manner of failuretriple flexure

No. 1032.

Marks, ³² B R₁₀Diameter, ^{T₁} ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001100	.000200	0.	.....	
8,000	40,000	.001300	.000200	0.	.....	
9,000	45,000	.001400	.000100	0.	.....	
10,000	50,000	.001600	.000200	0.		Elastic limit.
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001900	.000150	.....	.....	
11,000	55,000	.002250	.000350	.000550	.000550	
11,200	56,000	.002850	.000600	.....	.....	
11,400	57,000	.003250	.000400	.....	.....	
11,600	58,000	.003700	.000450	.....	.....	
11,800	59,000	.004600	.000900	.....	.....	
12,000	60,000	.005250	.000650	.003050	.002500	
12,400	62,000	.006300	.001050	.....	.....	
12,800	64,000	.008100	.001800	.....	.....	
13,200	66,000	.009650	.001550	.....	.....	
13,600	68,000	.011150	.001500	.....	.....	
14,000	70,000	.012650	.001500	.....	.....	
14,400	72,000	.014200	.001550	.....	.....	
14,800	74,000	.016050	.001850	.....	.....	
15,200	76,000	.017750	.001700	.....	.....	
15,600	78,000	.019750	.002000	.....	.....	
16,000	80,000	.022000	.002250	.....	.....	
16,400	82,000	.024500	.002500	.....	.....	
16,800	84,000	.026600	.002100	.....	.....	
17,200	86,000	.028750	.002150	.....	.....	
17,600	88,000	.031750	.003000	.....	.....	
18,000	90,000	.035600	.003850	.....	.....	
18,400	92,000	.039000	.003400	.....	.....	
18,800	94,000	.044250	.005250	.....	.....	
19,200	96,000	.051150	.006900	.....	.....	
19,600	98,000	.056000	.004850	.....	.....	
20,000	100,000	.0600	.0040	.....	.....	
20,400	102,000	.0850	.0250	.....	.....	
20,580	102,900	.1050	.0200			Tensile strength.

General summary.

Specific gravity	7.8616
Tensile strength per square inch of original section..... pounds..	102,900
Elastic limit per square inch of original section..... do...	53,000
Elongation per inch after rupture..... inch..	0.1700
Elongation per inch under strain at elastic limit..... do...	.001750
Reduction in diameter at point of rupture..... do...	.095
Reduction in area after rupture, per centum of original section.....	34.0
Position of rupture.....	".45 from middle of stem
Character of broken surface.....	granular; dull center
Elongation of inch sections.....	".26", ".08

No. 536.

Marks, $^{32}B R_{10}$
 T_2

Length, 4".50.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000700	.000150	0.	.....	
15,000	30,000	.000800	.000100	0.	.....	
17,500	35,000	.001000	.000200	0.	.....	
20,000	40,000	.001200	.000200	0.	.....	
22,500	45,000	.001300	.000100	0.	.....	
25,000	50,000	.001500	.000200	0.	.....	
27,500	55,000	.001600	.000100	0.	.....	
28,000	56,000	.001700	.000100	.....	.....	
28,500	57,000	.001700	0.	.....	.....	
29,000	58,000	.001750	.000050	.....	.....	
29,500	59,000	.001800	.000050			Elastic limit.
30,000	60,000	.001900	.000100	.000150	.000150	
30,500	61,000	.002000	.000100	.....	.....	
31,000	62,000	.002150	.000150	.....	.....	
31,500	63,000	.002250	.000100	.....	.....	
32,000	64,000	.002500	.000250			Ultimate strength.
32,500	65,000	.002800	.000300	.000900	.000750	
52,900	105,800	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 59,000
 Compression per inch under stress at elastic limit..... inch.. 0.001800
 Ultimate strength per square inch of original section pounds.. 105,800
 Manner of failure..... triple flexure

No. 1103.

Marks, ^{32 B R₁₅}_{T₁}Diameter, ¹¹/₁₆.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000250	.000150	0.	-----	
3,000	15,000	.000400	.000150	0.	-----	
4,000	20,000	.000550	.000150	0.	-----	
5,000	25,000	.000700	.000150	0.	-----	
6,000	30,000	.000850	.000150	0.	-----	
7,000	35,000	.001000	.000150	0.	-----	
8,000	40,000	.001150	.000150	0.	-----	
9,000	45,000	.001350	.000200	0.	-----	
10,000	50,000	.001550	.000200	.000050	.000050	Elastic limit.
11,000	55,000	.001800	.000250	.000050	c.	
11,200	56,000	.001850	.000050	-----	-----	
11,400	57,000	.001900	.000050	-----	-----	
11,600	58,000	.002100	.000200	-----	-----	
11,800	59,000	.002900	.000800	-----	-----	
12,000	60,000	.003500	.000600	.001350	.001300	
12,400	62,000	.004750	.001250	-----	-----	
12,800	64,000	.005750	.001000	-----	-----	
13,200	66,000	.006800	.001050	-----	-----	
13,600	68,000	.008350	.001550	-----	-----	
14,000	70,000	.009750	.001400	-----	-----	Tensile strength.
14,400	72,000	.011150	.001400	-----	-----	
14,800	74,000	.012600	.001450	-----	-----	
15,200	76,000	.014350	.001750	-----	-----	
15,600	78,000	.016050	.001700	-----	-----	
16,000	80,000	.018000	.001950	-----	-----	
16,400	82,000	.020000	.002000	-----	-----	
16,800	84,000	.021750	.001750	-----	-----	
17,200	86,000	.023800	.002050	-----	-----	
17,600	88,000	.025750	.001950	-----	-----	
18,000	90,000	.028050	.002300	-----	-----	
18,400	92,000	.030650	.002600	-----	-----	
18,800	94,000	.033550	.002900	-----	-----	
19,200	96,000	.036500	.002950	-----	-----	
19,600	98,000	.040000	.003500	-----	-----	
20,000	100,000	.045000	.005000	-----	-----	
20,400	102,000	.055000	.010000	-----	-----	
20,800	104,000	.0650	.0100	-----	-----	
21,200	106,000	.0750	.0100	-----	-----	
21,600	108,000	.0950	.0200	-----	-----	
21,800	109,000	.1800	.0850	-----	-----	

General summary.

Specific gravity.....	7.8623
Tensile strength per square inch of original section.....	pounds.. 109,000
Elastic limit per square inch of original section.....	do... 57,000
Elongation per inch after rupture.....	inch... 0.1950
Elongation per inch under strain at elastic limit.....	do... .001900
Reduction in diameter at point of rupture.....	do... .085
Reduction in area after rupture, per centum of original section.....	30.7
Position of rupture.....	§ inch from neck
Character of broken surface.....	granular; dull spot at circumference
Elongation of inch sections.....	".24*, ".15

No. 538.

Marks, ^{32 B R₁₅}
_{T₂}

Length, 4".50.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	-----	
5,000	10,000	.000300	.000200	0.	-----	
7,500	15,000	.000500	.000200	0.	-----	
10,000	20,000	.000650	.000150	0.	-----	
12,500	25,000	.000800	.000150	0.	-----	
15,000	30,000	.000950	.000150	0.	-----	
17,500	35,000	.001100	.000150	0.	-----	
20,000	40,000	.001250	.000150	0.	-----	
22,500	45,000	.001400	.000150	0.	-----	
25,000	50,000	.001550	.000150	0.	-----	
25,500	51,000	.001550	0.	-----	-----	
26,000	52,000	.001600	.000050	-----	-----	
26,500	53,000	.001600	0.	-----	-----	
27,000	54,000	.001650	.000050	-----	-----	
27,500	55,000	.001650	0.	0.	-----	
28,000	56,000	.001700	.000050	-----	-----	
28,500	57,000	.001700	0.	-----	-----	
29,000	58,000	.001750	.000050	-----	-----	
29,500	59,000	.001800	.000050	-----	-----	Elastic limit.
30,000	60,000	.001900	.000100	.000100	.000100	
30,500	61,000	.002050	.000150	-----	-----	
31,000	62,000	.002350	.000300	-----	-----	
31,500	63,000	.002750	.000400	-----	-----	
32,000	64,000	.003100	.000350	-----	-----	
32,500	65,000	.003700	.000600	.001300	.001200	
33,000	66,000	.004450	.000750	-----	-----	
33,500	67,000	.005000	.000550	-----	-----	
34,000	68,000	.005500	.000500	-----	-----	
34,500	69,000	.006000	.000500	-----	-----	Ultimate strength.
35,000	70,000	.006700	.000700	.004050	.002750	
53,420	106,840	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section pounds.. 59,000
 Compression per inch under stress at elastic limit inch.. 0.001800
 Ultimate strength per square inch of original section pounds.. 106,840
 Manner of failure triple flexure

No. 1104.

Marks, $^{32}B R_{20}$
 T_1 Diameter, $\frac{1}{2}$ inch.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000300	.000100	0.	.....	
4,000	20,000	.000450	.000150	0.	.....	
5,000	25,000	.000600	.000150	0.	.....	
6,000	30,000	.000800	.000200	0.	.....	
7,000	35,000	.001000	.000200	0.	.....	
8,000	40,000	.001200	.000200	0.	.....	
9,000	45,000	.001350	.000150	0.	.....	
10,000	50,000	.001500	.000150	0.		Elastic limit.
11,000	55,000	.001750	.000250	.000050	.000050	
11,200	56,000	.001850	.000100	.....	.....	
11,400	57,000	.001900	.000050	.....	.....	
11,600	58,000	.002050	.000150	.....	.....	
11,800	59,000	.002150	.000100	.....	.....	
12,000	60,000	.002400	.000250	.000400	.000350	
12,400	62,000	.003300	.000900	.....	.....	
12,800	64,000	.004150	.000850	.....	.....	
13,200	66,000	.006250	.002100	.....	.....	
13,600	68,000	.007650	.001400	.....	.....	
14,000	70,000	.009350	.001700	.....	.....	
14,400	72,000	.011150	.001800	.....	.....	
14,800	74,000	.012250	.001100	.....	.....	
15,200	76,000	.013850	.000600	.....	.....	
15,600	78,000	.015600	.001750	.....	.....	
16,000	80,000	.017500	.001900	.....	.....	
16,400	82,000	.019450	.001950	.....	.....	
16,800	84,000	.021250	.001800	.....	.....	
17,200	86,000	.024150	.002900	.....	.....	
17,600	88,000	.026550	.002400	.....	.....	
18,000	90,000	.029000	.002450	.....	.....	
18,400	92,000	.031500	.002500	.....	.....	
18,800	94,000	.034500	.003000	.....	.....	
19,200	96,000	.038000	.003500	.....	.....	
19,600	98,000	.042300	.004300	.....	.....	
20,000	100,000	.049350	.007050	.....	.....	
20,400	102,000	.052000	.002650	.....	.....	
20,800	104,000	.061750	.009750	.....	.....	
21,200	106,000	.0750	.013250	.....	.....	
21,550	107,750	.1100	.0350			Tensile strength.

General summary.

Specific gravity.....	7.8616
Tensile strength per square inch of original section.....	pounds.. 107,750
Elastic limit per square inch of original section.....	do... 59,000
Elongation per inch after rupture.....	inch.. 0.1650
Elongation per inch under strain at elastic limit.....	do... .002150
Reduction in diameter at point of rupture.....	do... .095
Reduction in area after rupture, per centum of original section.....	34.0
Position of rupture.....	$\frac{1}{2}$ inch from neck
Character of broken surface.....	granular; dull silky center
Elongation of inch sections.....	".25*, ".08

No. 539.

Marks, ^{32 B R₂₀}_{T₂}Length, 4''⁴⁹.Diameter, ''⁷⁹⁸.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	-----	
5,000	10,000	.000250	.000150	0.	-----	
7,500	15,000	.000400	.000150	0.	-----	
10,000	20,000	.000550	.000150	0.	-----	
12,500	25,000	.000700	.000150	0.	-----	
15,000	30,000	.000850	.000150	0.	-----	
17,500	35,000	.001000	.000150	0.	-----	
20,000	40,000	.001200	.000200	0.	-----	
22,500	45,000	.001350	.000150	0.	-----	
25,000	50,000	.001550	.000200	0.	-----	
25,500	51,000	.001600	.000050	-----	-----	Elastic limit.
26,000	52,000	.001700	.000100	-----	-----	
26,500	53,000	.001950	.000250	-----	-----	
27,000	54,000	.002400	.000450	-----	-----	
27,500	55,000	.003050	.000650	.001200	.001200	
28,000	56,000	.004650	.001600	-----	-----	
28,500	57,000	.006000	.001350	-----	-----	
29,000	58,000	.007450	.001450	-----	-----	
29,500	59,000	.008950	.001500	-----	-----	
30,000	60,000	.010400	.001450	.007800	.006600	Ultimate strength.
50,480	100,960	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section.....pounds. 51,000
 Compression per inch under stress at elastic limit.....inch. 0.001600
 Ultimate strength per square inch of original section.....pounds. 100,960
 Manner of failure.....triple flexure

No. 1105.

Marks, ^{32 B R₂₅}_{T₁}Diameter, ¹¹.505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	.....	.....	
2,000	10,000	.000300	.000150	.....	.....	
3,000	15,000	.000450	.000150	.....	.....	
4,000	20,000	.000600	.000150	.....	.....	
5,000	25,000	.000750	.000150	.....	.....	
6,000	30,000	.000900	.000150	.....	.....	
7,000	35,000	.001050	.000150	.....	.....	
8,000	40,000	.001250	.000200	.....	.....	
9,000	45,000	.001400	.000150	.....	.....	
9,200	46,000	.001450	.000050	.....	.....	
9,400	47,000	.001500	.000050	.....	.....	Elastic limit.
9,600	48,000	.001800	.000300	.....	.....	
9,800	49,000	.002350	.000550	.....	.....	
10,000	50,000	.002900	.000550	.001150	.001150	
10,200	51,000	.003400	.000500	.....	.....	
10,400	52,000	.003650	.000250	.....	.....	
10,600	53,000	.004150	.000500	.....	.....	
10,800	54,000	.004800	.000650	.....	.....	
11,000	55,000	.005400	.000600	.003350	.002200	
11,200	56,000	.006100	.000700	.....	.....	
11,400	57,000	.006550	.000450	.....	.....	
11,600	58,000	.007250	.000700	.....	.....	
11,800	59,000	.007900	.000650	.....	.....	
12,000	60,000	.008500	.000600	.006250	.002900	
12,400	62,000	.010000	.001500	.....	.....	
12,800	64,000	.011400	.001400	.....	.....	
13,200	66,000	.012900	.001500	.....	.....	
13,600	68,000	.014500	.001600	.....	.....	
14,000	70,000	.016000	.001500	.....	.....	
14,400	72,000	.017550	.001550	.....	.....	
14,800	74,000	.019500	.001950	.....	.....	
15,200	76,000	.021300	.001800	.....	.....	
15,600	78,000	.023700	.002400	.....	.....	
16,000	80,000	.026500	.002800	.....	.....	
16,400	82,000	.028250	.001750	.....	.....	
16,800	84,000	.031000	.002750	.....	.....	
17,200	86,000	.033700	.002700	.....	.....	
17,600	88,000	.037050	.003350	.....	.....	
18,000	90,000	.040000	.002950	.....	.....	
18,400	92,000	.043750	.003750	.....	.....	
18,800	94,000	.049150	.005400	.....	.....	
19,200	96,000	.055000	.005850	.....	.....	
19,600	98,000	.063000	.008000	.....	.....	
20,000	100,000	.0750	.0120	.....	.....	
20,400	102,000	.0950	.0200	.....	.....	
20,580	102,900	.1400	.0450	.....	.....	Tensile strength.

General summary.

Specific gravity.....	7.8672
Tensile strength per square inch of original section.....	pounds.. 102,900
Elastic limit per square inch of original section.....	do.. 47,000
Elongation per inch after rupture.....	inch.. 0.1900
Elongation per inch under strain at elastic limit.....	do.. .001500
Reduction in diameter at point of rupture.....	do.. .085
Reduction in area after rupture, per centum of original section.....	30.7
Position of rupture.....	$\frac{1}{2}$ inch from middle of stem
Character of broken surface.....	granular; dull spot near center
Elongation of inch sections.....	".26*, ".12

No. 540.

Marks, ^{32 B R₂₅}_{T₂}

Length, 4.149.

Diameter, .797.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000450	.000150	0.	.....	
10,000	20,000	.000600	.000150	0.	.....	
12,500	25,000	.000750	.000150	0.	.....	
15,000	30,000	.000900	.000150	0.	.....	
17,500	35,000	.001050	.000150	0.	.....	
20,000	40,000	.001200	.000150	0.	.....	
22,500	45,000	.001350	.000150	0.	.....	
24,000	48,000	.001450	.000100	.....	.....	
24,500	49,000	.001450	0.	.....	.....	
25,000	50,000	.001500	.000050	0.		Elastic limit.
25,500	51,000	.001800	.000300	.....	.....	
26,000	52,000	.002200	.000400	.....	.....	
26,500	53,000	.002450	.000250	.....	.....	
27,000	54,000	.002850	.000400	.....	.....	
27,500	55,000	.003400	.000550	.001500	.001500	
28,000	56,000	.003800	.000400	.....	.....	
28,500	57,000	.004350	.000550	.....	.....	
29,000	58,000	.004850	.000500	.....	.....	
29,500	59,000	.005500	.000650	.....	.....	
30,000	60,000	.006200	.000700	.004000	.002500	Ultimate strength.
47,950	95,900	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds... 50,000
 Compression per inch under stress at elastic limit.....inch... 0.001500
 Ultimate strength per square inch of original sectionpounds... 95,900
 Manner of failure.....triple flexure

SPECIMENS FROM STEEL SLEEVES

FOR

3".2 STEEL B. L. RIFLES.

SPECIMENS FROM STEEL SLEEVES FOR T & A STEEL & IRON

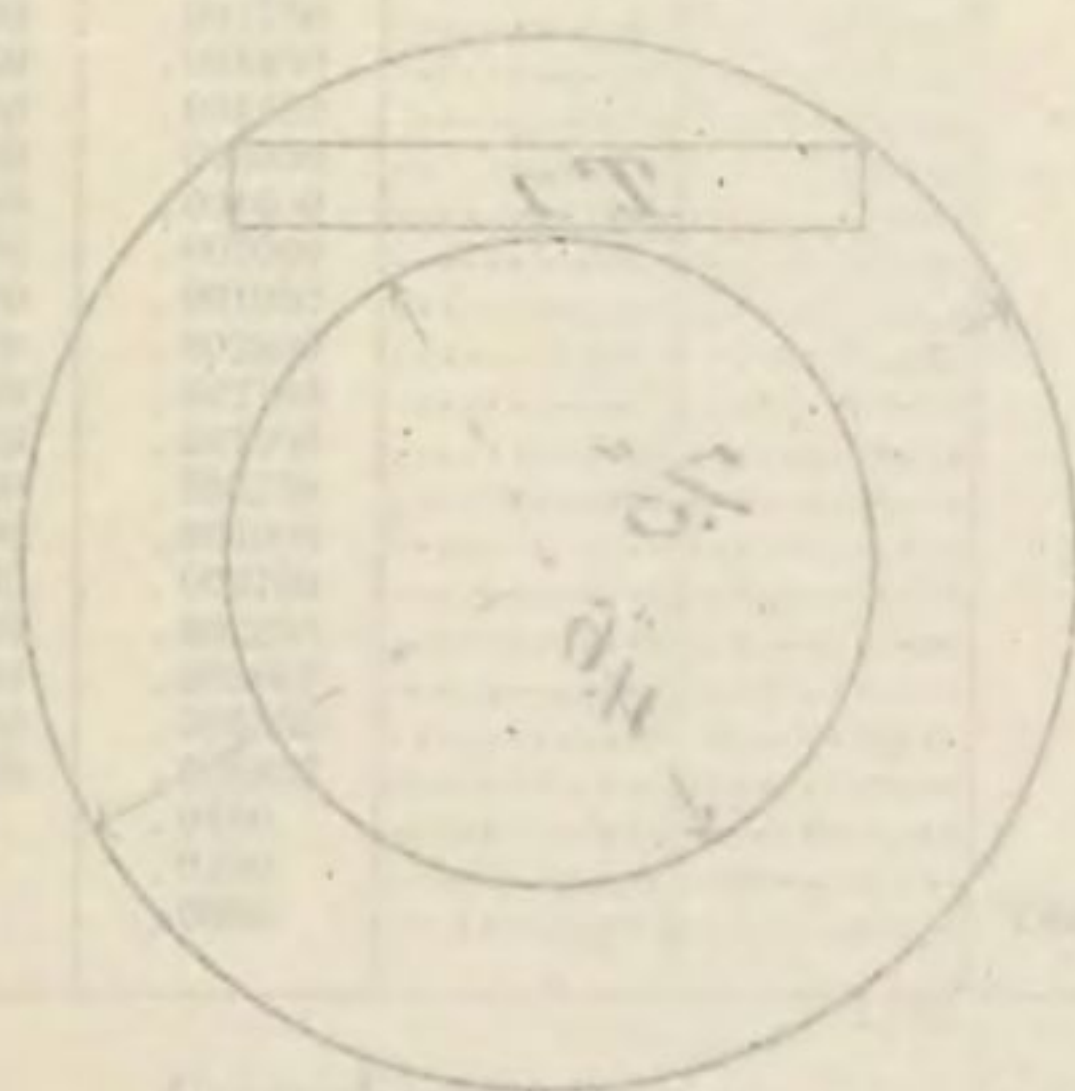
No. 1103.

Marked, "A"

Diameter, "505.

Sectional area, 20 square inch.

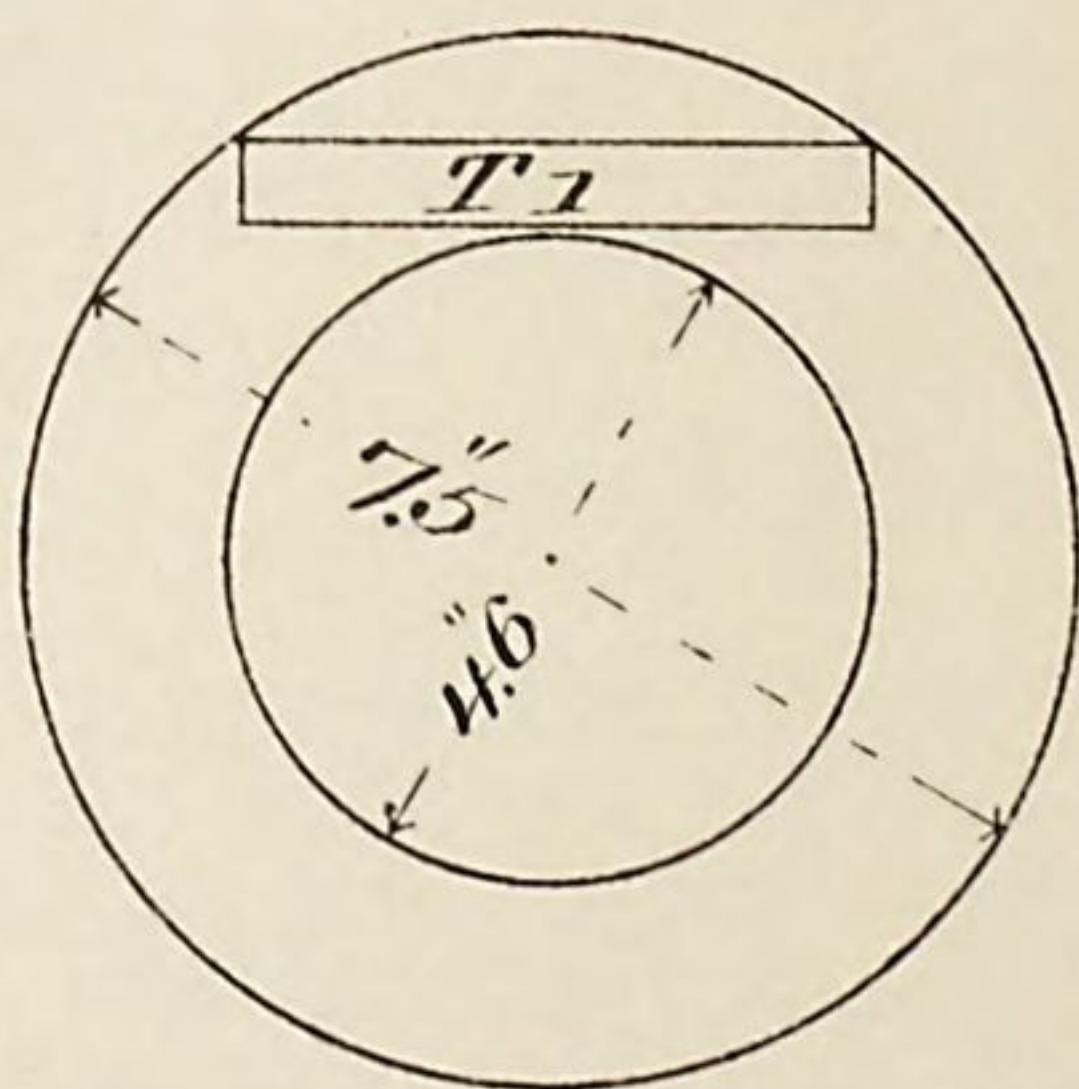
Sleeve		32 Rifle	
Position	Specimens	Position	Specimens
1	100	1	100
2	100	2	100
3	100	3	100
4	100	4	100
5	100	5	100
6	100	6	100
7	100	7	100
8	100	8	100
9	100	9	100
10	100	10	100
11	100	11	100
12	100	12	100
13	100	13	100
14	100	14	100
15	100	15	100
16	100	16	100
17	100	17	100
18	100	18	100
19	100	19	100
20	100	20	100
21	100	21	100
22	100	22	100
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46	100	46	100
47	100	47	100
48	100	48	100
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91	100	91	100
92	100	92	100
93	100	93	100
94	100	94	100
95	100	95	100
96	100	96	100
97	100	97	100
98	100	98	100
99	100	99	100
100	100	100	100



H Ex 31 49 2

Sleeve 3.2" Rifle

*General drawing showing
position from whence
specimens were taken.*



H Ex 3/ 49 2

SPECIMENS FROM STEEL SLEEVES FOR 3".2 STEEL B. L. RIFLES.

No. 1106.

Marks, $^{32}S_1$
 T_1

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000300	.000150	0.	-----	
3,000	15,000	.000400	.000100	0.	-----	
4,000	20,000	.000600	.000200	0.	-----	
5,000	25,000	.000800	.000200	0.	-----	
6,000	30,000	.000950	.000150	0.	-----	
7,000	35,000	.001100	.000150	0.	-----	
8,000	40,000	.001300	.000200	0.	-----	
9,000	45,000	.001450	.000150	0.	-----	
10,000	50,000	.001650	.000200	.000050	.000050	Elastic limit.
11,000	55,000	.001800	.000150	.000050	0.	
11,200	56,000	.001850	.000050	-----	-----	
11,400	57,000	.001850	0.	-----	-----	
11,600	58,000	.001900	.000050	-----	-----	
11,800	59,000	.001950	.000050	-----	-----	
12,000	60,000	.002050	.000100	.000150	.000100	
12,200	61,000	.002100	.000050	-----	-----	
12,400	62,000	.002300	.000200	-----	-----	
12,600	63,000	.002700	.000400	-----	-----	
12,800	64,000	.003050	.000350	-----	-----	
13,000	65,000	.003700	.000650	-----	-----	
13,200	66,000	.004350	.000650	-----	-----	
13,400	67,000	.005250	.000900	-----	-----	
13,600	68,000	.006250	.001000	-----	-----	
13,800	69,000	.006750	.000500	-----	-----	
14,000	70,000	.007250	.000500	-----	-----	
14,400	72,000	.009000	.001750	-----	-----	
14,800	74,000	.010850	.001850	-----	-----	
15,200	76,000	.012250	.001400	-----	-----	Tensile strength.
15,600	78,000	.014300	.002050	-----	-----	
16,000	80,000	.015900	.001600	-----	-----	
16,400	82,000	.017900	.002000	-----	-----	
16,800	84,000	.019850	.001950	-----	-----	
17,200	86,000	.022650	.002800	-----	-----	
17,600	88,000	.024750	.002100	-----	-----	
18,000	90,000	.026650	.001900	-----	-----	
18,400	92,000	.029000	.002350	-----	-----	
18,800	94,000	.033000	.004000	-----	-----	
19,200	96,000	.036750	.003750	-----	-----	
19,600	98,000	.039000	.002250	-----	-----	
20,000	100,000	.042800	.003800	-----	-----	
20,400	102,000	.048150	.005350	-----	-----	
20,800	104,000	.055000	.006850	-----	-----	
21,200	106,000	.0650	.0100	-----	-----	
21,600	108,000	.0800	.0150	-----	-----	
21,900	109,500	.1400	.0600	-----	-----	

General summary.

Specific gravity.....	7.8621
Tensile strength per square inch of original section..... pounds..	109,500
Elastic limit per square inch of original section..... do..	61,000
Elongation per inch after rupture..... inch..	0.2050
Elongation per inch under strain at elastic limit..... do..	.002100
Reduction in diameter at point of rupture..... do..	.115
Reduction in area after rupture, per centum of original section.....	40.3
Position of rupture.....	at middle of stem
Character of broken surface.....	silky, 80 per centum; granular, 20 per centum
Elongation of inch sections.....	".19", ".22"

No. 1107.

Marks, $\frac{32}{T_1} S_5$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
9,000	45,000	.001500	.000150	0.	.....	
10,000	50,000	.001650	.000150	.000050	.000050	Elastic limit.
11,000	55,000	.001850	.000200	.000250	.000200	
11,200	56,000	.001950	.000100	.....	.....	
11,400	57,000	.002250	.000300	.....	.....	
11,600	58,000	.002700	.000450	.....	.....	
11,800	59,000	.003200	.000500	.....	.....	
12,000	60,000	.003750	.000550	.001650	.001400	
12,400	62,000	.004800	.001050	.....	.....	
12,800	64,000	.006150	.001350	.....	.....	
13,200	66,000	.007750	.001600	.....	.....	
13,600	68,000	.009500	.001750	.....	.....	
14,000	70,000	.011000	.001500			Tensile strength.
14,400	72,000	.012300	.001300	.....	.....	
14,800	74,000	.014000	.001700	.....	.....	
15,200	76,000	.016000	.002000	.....	.....	
15,600	78,000	.017600	.001600	.....	.....	
16,000	80,000	.019050	.001450	.....	.....	
16,400	82,000	.020900	.001850	.....	.....	
16,800	84,000	.023050	.002150	.....	.....	
17,200	86,000	.025100	.002050	.....	.....	
17,600	88,000	.028250	.003150	.....	.....	
18,000	90,000	.031250	.003000	.....	.....	
18,400	92,000	.032850	.001600	.....	.....	
18,800	94,000	.035750	.002900	.....	.....	
19,200	96,000	.040000	.004250	.....	.....	
19,600	98,000	.043750	.003750	.....	.....	
20,000	100,000	.049700	.005950	.....	.....	
20,400	102,000	.056000	.006300	.....	.....	
20,800	104,000	.0600	.0040	.....	.....	
21,200	106,000	.0850	.0250	.....	.....	
21,300	106,500	.1200	.0350	.....	.....	

General summary.

Specific gravity.....	7.8627
Tensile strength per square inch of original section.....	pounds.. 106,500
Elastic limit per square inch of original section.....	do... 56,000
Elongation per inch after rupture.....	inch.. 0.1500
Elongation per inch under strain at elastic limit.....	do... .001950
Reduction in diameter at point of rupture.....	do... .085
Reduction in area after rupture, per centum of original section.....	30.7
Position of rupture.....	".55 from neck
Character of broken surface.....	granular; dull center
Elongation of inch sections.....	".22", ".08

No. 1108.

Marks, $^{32}S_{10}$
 T_1

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	.....	.....	
7,000	35,000	.001050	.000150	.....	.....	
8,000	40,000	.001250	.000200	.....	.....	
9,000	45,000	.001400	.000150	.....	.....	
10,000	50,000	.001550	.000150	0.		Elastic limit
11,000	55,000	.001800	.000250	.000050	.000050	
11,200	56,000	.002050	.000250	.....	.....	
11,400	57,000	.002650	.000600	.....	.....	
11,600	58,000	.003550	.000900	.....	.....	
11,800	59,000	.004150	.000600	.....	.....	
12,000	60,000	.004800	.000650	.002650	.002600	
12,400	62,000	.006500	.001700	.....	.....	
12,800	64,000	.007700	.001200	.....	.....	
13,200	66,000	.009100	.001400	.....	.....	
13,600	68,000	.011000	.001900			Tensile strength.
14,000	70,000	.012400	.001400	.....	.....	
14,400	72,000	.014100	.001700	.....	.....	
14,800	74,000	.015600	.001500	.....	.....	
15,200	76,000	.017300	.001700	.....	.....	
15,600	78,000	.019500	.002200	.....	.....	
16,000	80,000	.021250	.001750	.....	.....	
16,400	82,000	.023500	.002250	.....	.....	
16,800	84,000	.025850	.002350	.....	.....	
17,200	86,000	.028500	.002650	.....	.....	
17,600	88,000	.032000	.003500			Tensile strength.
18,000	90,000	.035100	.003100	.....	.....	
18,400	92,000	.038550	.003450	.....	.....	
18,800	94,000	.042250	.003700	.....	.....	
19,200	96,000	.046750	.004500	.....	.....	
19,600	98,000	.051400	.004650	.....	.....	
20,000	100,000	.0600	.0086	.....	.....	
20,400	102,000	.0700	.0100	.....	.....	
20,800	104,000	.0900	.0200	.....	.....	
21,000	105,000	.1200	.0300	.....	.....	

General summary.

Specific gravity.....	7.8636
Tensile strength per square inch of original section.....	pounds.. 105,000
Elastic limit per square inch of original section.....	do.. 55,000
Elongation per inch after rupture.....	inch.. 0.1850
Elongation per inch under strain at elastic limit.....	do.. .001800
Reduction in diameter at point of rupture.....	do.. .095
Reduction in area after rupture, per centum of original section.....	34.0
Position of rupture.....	$\frac{1}{2}$ inch from middle of stem
Character of broken surface.....	granular, 50 per centum; dull, silky center, 50 per centum
Elongation of inch sections.....	".26*, ".11

H. Ex. 31—32

No. 1109.

Marks, ^{32 S15}_{T1}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	-----	
2,000	10,000	.000250	.000100	0.	-----	
3,000	15,000	.000400	.000150	0.	-----	
4,000	20,000	.000550	.000150	0.	-----	
5,000	25,000	.000800	.000250	0.	-----	
6,000	30,000	.000950	.000150	0.	-----	
7,000	35,000	.001100	.000150	0.	-----	
8,000	40,000	.001250	.000150	0.	-----	
9,000	45,000	.001400	.000150	0.	-----	
10,000	50,000	.001550	.000150	0.	-----	
11,000	55,000	.001700	.000150	0.	-----	
11,200	56,000	.001800	.000100	-----	-----	
11,400	57,000	.001850	.000050	-----	-----	
11,600	58,000	.001900	.000050	-----	-----	
11,800	59,000	.002000	.000100	-----	-----	Elastic limit.
12,000	60,000	.002300	.000300	.000400	.000100	
12,400	62,000	.003200	.000900	-----	-----	
12,800	64,000	.004300	.001100	-----	-----	
13,200	66,000	.005350	.001050	-----	-----	
13,600	68,000	.006750	.001400	-----	-----	
14,000	70,000	.008450	.001700	-----	-----	
14,400	72,000	.009750	.001300	-----	-----	
14,800	74,000	.011300	.001550	-----	-----	
15,200	76,000	.013000	.001700	-----	-----	
15,600	78,000	.015000	.002000	-----	-----	
16,000	80,000	.016550	.001550	-----	-----	
16,400	82,000	.018300	.001750	-----	-----	
16,800	84,000	.020000	.001700	-----	-----	
17,200	86,000	.022500	.002500	-----	-----	
17,600	88,000	.024500	.002000	-----	-----	
18,000	90,000	.026600	.002100	-----	-----	
18,400	92,000	.029000	.002400	-----	-----	
18,800	94,000	.031700	.002700	-----	-----	
19,200	96,000	.034500	.002800	-----	-----	
19,600	98,000	.038200	.003700	-----	-----	
20,000	100,000	.041800	.003600	-----	-----	
20,400	102,000	.046500	.004700	-----	-----	
20,800	104,000	.052100	.005600	-----	-----	
21,200	106,000	.0600	.0079	-----	-----	
21,600	108,000	.0700	.0100	-----	-----	
22,000	110,000	.1050	.0350	-----	-----	Tensile strength.

General summary.

Specific gravity.....	7,8655
Tensile strength per square inch of original section.....	pounds.. 110,000
Elastic limit per square inch of original section.....	do... 59,000
Elongation per inch after rupture.....	inch.. 0.1550
Elongation per inch under strain at elastic limit.....	do... .002000
Reduction in diameter at point of rupture.....	do... .085
Reduction in area after rupture, per centum of original section.....	30.7
Position of rupture.....	".40 from neck
Character of broken surface.....	granular; dull, silky center
Elongation of inch sections.....	".23*, ".08

No. 2191.

Marks, $\frac{32}{T_1} S_{16}$

Diameter, ".504.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	— .000050	— .000050	
2,000	10,000	.000200	.000100	— .000050	0.	
3,000	15,000	.000300	.000100	— .000050	0.	
4,000	20,000	.000400	.000100	— .000100	— .000050	
5,000	25,000	.000500	.000100	— .000100	0.	
6,000	30,000	.000700	.000200	— .000100	0.	
7,000	35,000	.000850	.000150	— .000100	0.	
8,000	40,000	.001100	.000250	— .000100	0.	
9,000	45,000	.001250	.000150	— .000100	0.	
10,000	50,000	.001450	.000200	— .000100	0.	
10,200	51,000	.001450	0.	— .000100	0.	
10,400	52,000	.001500	.000050	— .000100	0.	
10,600	53,000	.001550	.000050	— .000100	0.	
10,800	54,000	.001600	.000050	— .000100	0.	
11,000	55,000	.001600	0.	— .000100	0.	
11,200	56,000	.001650	.000050	— .000100	0.	
11,400	57,000	.001700	.000050	— .000100	0.	
11,600	58,000	.001750	.000050	— .000100	0.	
11,800	59,000	.002000	.000250	— .000100	0.	
12,000	60,000	.002150	.000150	.000250	.000350	Elastic limit.
12,200	61,000	.002600	.000450	— .000100	— .000100	
12,400	62,000	.002850	.000250	— .000100	— .000100	
12,600	63,000	.003200	.000350	— .000100	— .000100	
12,800	64,000	.003850	.000650	— .000100	— .000100	
13,000	65,000	.004500	.000650	— .000100	— .000100	
13,200	66,000	.005200	.000700	— .000100	— .000100	
13,400	67,000	.005800	.000600	— .000100	— .000100	
13,600	68,000	.006700	.000900	— .000100	— .000100	
13,800	69,000	.007800	.001100	— .000100	— .000100	
14,000	70,000	.009100	.001300	— .000100	— .000100	
14,400	72,000	.010600	.001500	— .000100	— .000100	
14,800	74,000	.012350	.001750	— .000100	— .000100	
15,200	76,000	.014350	.002000	— .000100	— .000100	
15,600	78,000	.016350	.002000	— .000100	— .000100	
16,000	80,000	.018150	.001800	— .000100	— .000100	
16,400	82,000	.020250	.002100	— .000100	— .000100	
16,800	84,000	.022600	.002350	— .000100	— .000100	
17,200	86,000	.025200	.002600	— .000100	— .000100	
17,600	88,000	.028000	.002800	— .000100	— .000100	
18,000	90,000	.030600	.002600	— .000100	— .000100	
18,400	92,000	.034050	.003450	— .000100	— .000100	
18,800	94,000	.038000	.003950	— .000100	— .000100	
19,200	96,000	.042550	.004550	— .000100	— .000100	
19,600	98,000	.047250	.004700	— .000100	— .000100	
20,000	100,000	.054500	.007250	— .000100	— .000100	
20,400	102,000	.0600	.0055	— .000100	— .000100	
20,800	104,000	.0900	.0300	— .000100	— .000100	
20,810	104,050	—	—	— .000100	— .000100	
						Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	104,050
Elastic limit per square inch of original section	do..	58,000
Elongation per inch after rupture	inch..	0.1300
Elongation per inch under strain at elastic limit	do..	.001750
Reduction in diameter at point of rupture	do..	.064
Reduction in area after rupture, per centum of original section		23.9
Position of rupture	".55 from neck	
Character of broken surface	granular; radiating from a dull spot at circumference	
Elongation of inch sections	".18*, ".08	

[Additional specimens.]

No. 2407.

Marks, $^{32}S_{16}$
 T_2

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000450	.000100	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000650	.000100	0.	.....	
6,000	30,000	.000800	.000150	0.	.....	
7,000	35,000	.000950	.000150	0.	.....	
8,000	40,000	.001100	.000150	0.	.....	
9,000	45,000	.001300	.000200	.....	.....	
10,000	50,000	.001500	.000200	.....	.....	
10,200	51,000	.001550	.000050	.....	.....	
10,400	52,000	.001600	.000050	.....	.....	
10,600	53,000	.001650	.000050	.....	.....	
10,800	54,000	.001750	.000100	.....	.....	
11,000	55,000	.001800	.000050	.....	.....	
11,200	56,000	.001800	0.			Elastic limit.
11,400	57,000	.002500	.000700	.....	.....	
11,600	58,000	.002900	.000400	.....	.....	
11,800	59,000	.003600	.000700	.....	.....	
12,000	60,000	.004750	.001150	.....	.....	
12,400	62,000	.007000	.002250	.....	.....	
12,800	64,000	.009100	.002100	.....	.....	
13,200	66,000	.010600	.001500	.....	.....	
13,600	68,000	.012500	.001900	.....	.....	
14,000	70,000	.014250	.001750	.....	.....	
14,400	72,000	.016150	.001900	.....	.....	
14,800	74,000	.018100	.001950	.....	.....	
15,200	76,000	.020250	.002150	.....	.....	
15,600	78,000	.022250	.002000	.....	.....	
16,000	80,000	.025250	.003000	.....	.....	
16,400	82,000	.028000	.002750	.....	.....	
16,800	84,000	.031000	.003000	.....	.....	
17,200	86,000	.035000	.004000	.....	.....	
17,600	88,000	.038050	.003050	.....	.....	
18,000	90,000	.042550	.004500	.....	.....	
18,400	92,000	.0500	.007450	.....	.....	
18,800	94,000	.0550	.0050	.....	.....	
19,200	96,000	.0600	.0050	.....	.....	
19,600	98,000	.0900	.0300	.....	.....	
19,680	98,400					Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	98,400
Elastic limit per square inch of original section	do...	56,000
Elongation per inch after rupture	inch..	0.1000
Elongation per inch under strain at elastic limit	do...	.001800
Reduction in diameter at point of rupture	do...	.035
Reduction in area after rupture, per centum of original section		13.2
Position of rupture		".75 from neck
Character of broken surface	granular; crack in stem near point of rupture	
Elongation of inch sections		".11", ".09

No. 2505.

Marks, ^{32 S₂₀}_{T₁}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001030	.000150	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001400	.000200	0.	.....	
9,000	45,000	.001550	.000150	0.	.....	
10,000	50,000	.001700	.000150	0.	.....	
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001800	.000050	.....	.....	
10,600	53,000	.001800	0.	.....	.....	
10,800	54,000	.001900	.000100			Elastic limit.
11,000	55,000	.003000	.001100	.....	.....	
11,200	56,000	.006000	.003000	.....	.....	
11,400	57,000	.006750	.000750	.....	.....	
11,600	58,000	.007500	.000750	.....	.....	
11,800	59,000	.008250	.000750	.....	.....	
12,000	60,000	.009100	.000850	.....	.....	
12,400	62,000	.010950	.001850	.....	.....	
12,800	64,000	.012600	.001650	.....	.....	
13,200	66,000	.014500	.001930	.....	.....	
13,600	68,000	.016250	.001750	.....	.....	
14,000	70,000	.018250	.002000	.....	.....	
14,400	72,000	.020950	.002700	.....	.....	
14,800	74,000	.022700	.001750	.....	.....	
15,200	76,000	.025250	.002550	.....	.....	
15,600	78,000	.027850	.002600	.....	.....	
16,000	80,000	.030900	.003050	.....	.....	
16,400	82,000	.034050	.003150	.....	.....	
16,800	84,000	.037750	.003700	.....	.....	
17,200	86,000	.041800	.004050	.....	.....	
17,600	88,000	.048600	.006800	.....	.....	
18,000	90,000	.055100	.006500	.....	.....	
18,400	92,000	.0600	.0049	.....	.....	
18,800	94,000	.0750	.0150	.....	.....	
19,200	96,000	.1000	.0250	.....	.....	
19,400	97,000	.1400	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	97,000
Elastic limit per square inch of original section	do...	54,000
Elongation per inch after rupture.....	inch..	0.2500
Elongation per inch under strain at elastic limit	do...	.001900
Reduction in diameter at point of rupture	do...	.165
Reduction in area after rupture, per centum of original section		54.6
Position of rupture.....	".65 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".37", ".13	

[Additional specimens.]

No. 2407.

Marks, $^{32}S_{16}$
 T_2

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000450	.000100	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000650	.000100	0.	.....	
6,000	30,000	.000800	.000150	0.	.....	
7,000	35,000	.000950	.000150	0.	.....	
8,000	40,000	.001100	.000150	0.	.....	
9,000	45,000	.001300	.000200	.....	.....	
10,000	50,000	.001500	.000200	.....	.....	
10,200	51,000	.001550	.000050	.....	.....	
10,400	52,000	.001600	.000050	.....	.....	
10,600	53,000	.001650	.000050	.....	.....	
10,800	54,000	.001750	.000100	.....	.....	
11,000	55,000	.001800	.000050	.....	.....	
11,200	56,000	.001800	0.	.....	.....	Elastic limit.
11,400	57,000	.002500	.000700	.....	.....	
11,600	58,000	.002900	.000400	.....	.....	
11,800	59,000	.003600	.000700	.....	.....	
12,000	60,000	.004750	.001150	.....	.....	
12,400	62,000	.007000	.002250	.....	.....	
12,800	64,000	.009100	.002100	.....	.....	
13,200	66,000	.010600	.001500	.....	.....	
13,600	68,000	.012500	.001900	.....	.....	
14,000	70,000	.014250	.001750	.....	.....	
14,400	72,000	.016150	.001900	.....	.....	
14,800	74,000	.018100	.001950	.....	.....	
15,200	76,000	.020250	.002150	.....	.....	
15,600	78,000	.022250	.002000	.....	.....	
16,000	80,000	.025250	.003000	.....	.....	
16,400	82,000	.028000	.002750	.....	.....	
16,800	84,000	.031000	.003000	.....	.....	
17,200	86,000	.035000	.004000	.....	.....	
17,600	88,000	.038050	.003050	.....	.....	
18,000	90,000	.042550	.004500	.....	.....	
18,400	92,000	.0500	.007450	.....	.....	
18,800	94,000	.0550	.0050	.....	.....	
19,200	96,000	.0600	.0050	.....	.....	
19,600	98,000	.0900	.0300	.....	.....	
19,680	98,400	.....	.....	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	98,400
Elastic limit per square inch of original section.....	do....	56,000
Elongation per inch after rupture.....	inch..	0.1000
Elongation per inch under strain at elastic limit.....	do....	.001800
Reduction in diameter at point of rupture.....	do....	.035
Reduction in area after rupture, per centum of original section.....		13.2
Position of rupture.....		".75 from neck
Character of broken surface.....	granular; crack in stem near point of rupture	
Elongation of inch sections.....		".11*, ".09

No. 2505.

Marks, ^{32 S₂₀}_{T₁}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001200	.000200	0.	.....	
8,000	40,000	.001400	.000200	0.	.....	
9,000	45,000	.001550	.000150	0.	.....	
10,000	50,000	.001700	.000150	0.		Elastic limit.
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001800	.000050	.....	.....	
10,600	53,000	.001800	0.	.....	.....	
10,800	54,000	.001900	.000100	.....	.....	
11,000	55,000	.003000	.001100	.....	.....	
11,200	56,000	.006000	.003000	.....	.....	
11,400	57,000	.006750	.000750	.....	.....	
11,600	58,000	.007500	.000750	.....	.....	
11,800	59,000	.008250	.000750	.....	.....	
12,000	60,000	.009100	.000850			Tensile strength.
12,400	62,000	.010950	.001850	.....	.....	
12,800	64,000	.012600	.001650	.....	.....	
13,200	66,000	.014500	.001900	.....	.....	
13,600	68,000	.016250	.001750	.....	.....	
14,000	70,000	.018250	.002000	.....	.....	
14,400	72,000	.020950	.002700	.....	.....	
14,800	74,000	.022700	.001750	.....	.....	
15,200	76,000	.025250	.002550	.....	.....	
15,600	78,000	.027850	.002600	.....	.....	
16,000	80,000	.030900	.003050			
16,400	82,000	.034050	.003150	.....	.....	
16,800	84,000	.037750	.003700	.....	.....	
17,200	86,000	.041800	.004050	.....	.....	
17,600	88,000	.048600	.006800	.....	.....	
18,000	90,000	.055100	.006500	.....	.....	
18,400	92,000	.0600	.0049	.....	.....	
18,800	94,000	.0750	.0150	.....	.....	
19,200	96,000	.1000	.0250	.....	.....	
19,400	97,000	.1400	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	97,000
Elastic limit per square inch of original section.....	do...	54,000
Elongation per inch after rupture.....	inch..	0.2500
Elongation per inch under strain at elastic limit.....	do...	.001900
Reduction in diameter at point of rupture.....	do...	.165
Reduction in area after rupture, per centum of original section.....		54.6
Position of rupture.....	".65 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".37*, ".13	

No. 2192.

Marks, $^{32}S_{21}$
 T_1

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000300	.000100	0.	.....	
4,000	20,000	.000450	.000150	0.	.....	
5,000	25,000	.000600	.000150	0.	.....	
6,000	30,000	.000800	.000200	0.	.....	
7,000	35,000	.001000	.000200	0.	.....	
8,000	40,000	.001150	.000150	0.	.....	
9,000	45,000	.001350	.000200	0.	.....	
10,000	50,000	.001550	.000200	0.	.....	
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.001700	0.			Elastic limit.
11,000	55,000	.002000	.000300	.....	.....	
11,200	56,000	.002900	.000900	.....	.....	
11,400	57,000	.003450	.000550	.....	.....	
11,600	58,000	.003950	.000500	.....	.....	
11,800	59,000	.004500	.000550	.....	.....	
12,000	60,000	.005400	.000900	.....	.....	
12,400	62,000	.006750	.001350	.....	.....	
12,800	64,000	.008500	.001750	.....	.....	
13,200	66,000	.010000	.001500	.....	.....	
13,600	68,000	.012200	.002200	.....	.....	
14,000	70,000	.014250	.002050	.....	.....	
14,400	72,000	.016250	.002000	.....	.....	
14,800	74,000	.018000	.001750	.....	.....	
15,200	76,000	.020000	.002000	.....	.....	
15,600	78,000	.021850	.001850	.....	.....	
16,000	80,000	.024300	.002450	.....	.....	
16,400	82,000	.027000	.002700	.....	.....	
16,800	84,000	.029550	.002550	.....	.....	
17,200	86,000	.033000	.003450	.....	.....	
17,600	88,000	.037000	.004000	.....	.....	
18,000	90,000	.040800	.003800	.....	.....	
18,400	92,000	.045350	.004550	.....	.....	
18,800	94,000	.051500	.006150	.....	.....	
19,200	96,000	.0600	.0085	.....	.....	
19,600	98,000	.0750	.0150	.....	.....	
20,000	100,000	.1000	.0250			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	100,000
Elastic limit per square inch of original section.....	do...	54,000
Elongation per inch after rupture.....	inch..	0.1900
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do...	.115
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....	".40 from neck	
Character of broken surface.....	granular; dull center	
Elongation of inch sections.....	".30*, ".08	

No. 2193.

Marks, $\frac{32}{T_1} S_{1.5}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000450	.000250	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001400	.000150	0.	.....	
10,000	50,000	.001550	.000150	0.		Elastic limit.
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.001700	0.	.....	.....	
11,000	55,000	.001900	.000200	.....	.....	
11,200	56,000	.002100	.000200	.....	.....	
11,400	57,000	.002400	.000300	.....	.....	
11,600	58,000	.002950	.000550	.....	.....	
11,800	59,000	.003600	.000650	.....	.....	
12,000	60,000	.004650	.001050			Tensile strength.
12,400	62,000	.006300	.001650	.....	.....	
12,800	64,000	.007800	.001500	.....	.....	
13,200	66,000	.009200	.001400	.....	.....	
13,600	68,000	.010750	.001550	.....	.....	
14,000	70,000	.012800	.002050	.....	.....	
14,400	72,000	.014500	.001700	.....	.....	
14,800	74,000	.016000	.001500	.....	.....	
15,200	76,000	.018000	.002000	.....	.....	
15,600	78,000	.019650	.001650	.....	.....	
16,000	80,000	.021500	.001850			Tensile strength.
16,400	82,000	.024000	.002500	.....	.....	
16,800	84,000	.026800	.002800	.....	.....	
17,200	86,000	.029000	.002200	.....	.....	
17,600	88,000	.031500	.002500	.....	.....	
18,000	90,000	.034350	.002850	.....	.....	
18,400	92,000	.038000	.003650	.....	.....	
18,800	94,000	.041500	.003500	.....	.....	
19,200	96,000	.046550	.005050	.....	.....	
19,600	98,000	.052700	.006150	.....	.....	
20,000	100,000	.0600	.0073			Tensile strength.
20,400	102,000	.0700	.0100	.....	.....	
20,800	104,000	.0900	.0200	.....	.....	
20,890	104,450	.1150	.0250	.....	.....	

General summary.

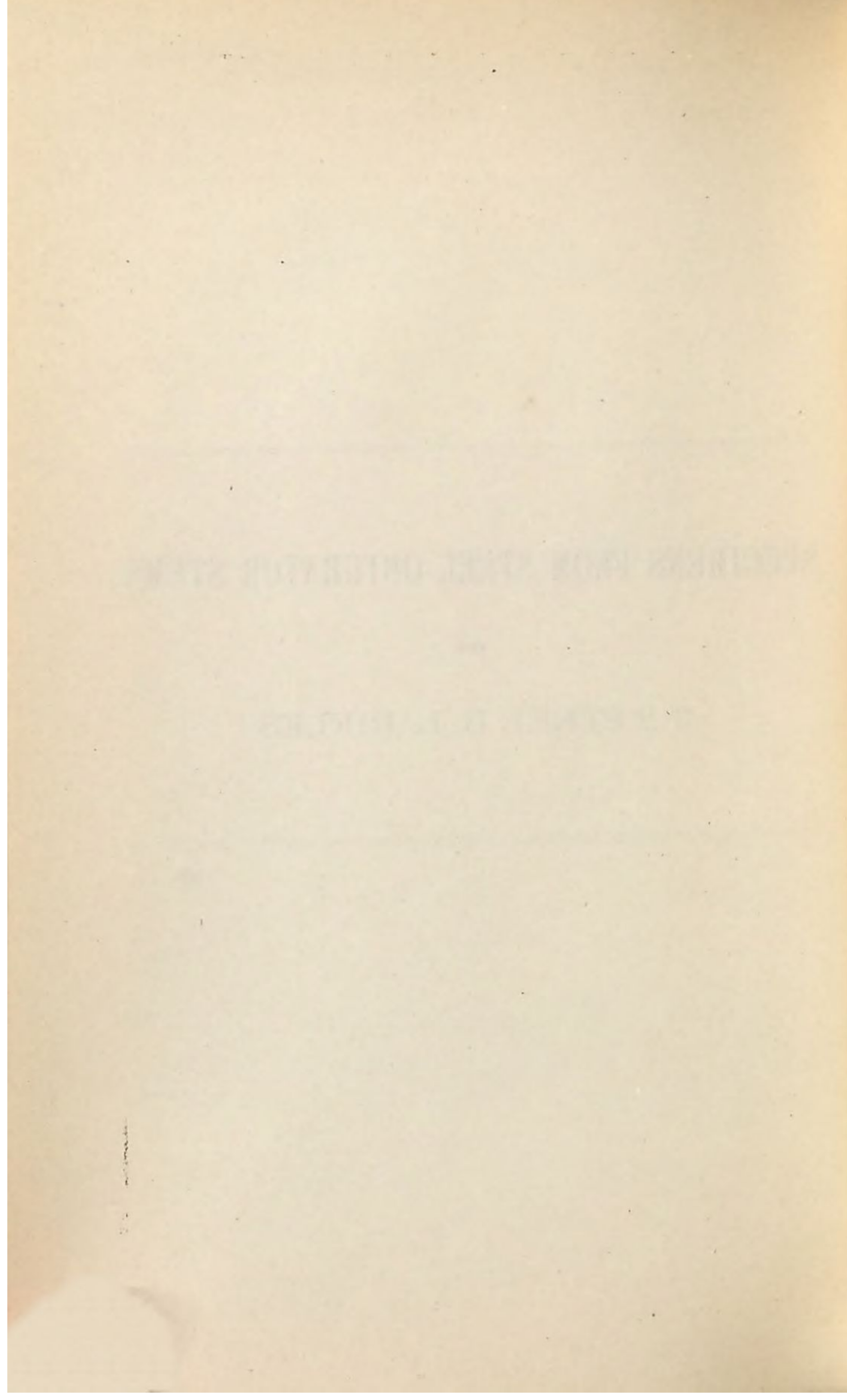
Tensile strength per square inch of original section	pounds..	104,450
Elastic limit per square inch of original section	do...	54,000
Elongation per inch after rupture	inch..	0.1700
Elongation per inch under strain at elastic limit	do...	.001700
Reduction in diameter at point of rupture	do...	.095
Reduction in area after rupture, per centum of original section		34.0
Position of rupture		".4 from neck
Character of broken surface		granular; dull center
Elongation of inch sections		".25", ".09

Date		Description		Amount	
1890	Jan 1	Balance		100.00	
	Feb 1	Interest		5.00	
	Mar 1	Interest		5.00	
	Apr 1	Interest		5.00	
	May 1	Interest		5.00	
	Jun 1	Interest		5.00	
	Jul 1	Interest		5.00	
	Aug 1	Interest		5.00	
	Sep 1	Interest		5.00	
	Oct 1	Interest		5.00	
	Nov 1	Interest		5.00	
	Dec 1	Interest		5.00	
1891	Jan 1	Balance		100.00	
	Feb 1	Interest		5.00	
	Mar 1	Interest		5.00	
	Apr 1	Interest		5.00	
	May 1	Interest		5.00	
	Jun 1	Interest		5.00	
	Jul 1	Interest		5.00	
	Aug 1	Interest		5.00	
	Sep 1	Interest		5.00	
	Oct 1	Interest		5.00	
	Nov 1	Interest		5.00	
	Dec 1	Interest		5.00	
1892	Jan 1	Balance		100.00	
	Feb 1	Interest		5.00	
	Mar 1	Interest		5.00	
	Apr 1	Interest		5.00	
	May 1	Interest		5.00	
	Jun 1	Interest		5.00	
	Jul 1	Interest		5.00	
	Aug 1	Interest		5.00	
	Sep 1	Interest		5.00	
	Oct 1	Interest		5.00	
	Nov 1	Interest		5.00	
	Dec 1	Interest		5.00	

SPECIMENS FROM STEEL OBTURATOR STEMS

FOR

3".2 STEEL B. L. RIFLES.



SPECIMENS FROM STEEL OBTURATOR STEMS FOR 7.5 MILLIMETER B. L. RIFLES.

No. 550.

Marks, 2796.

Length, 4.49.

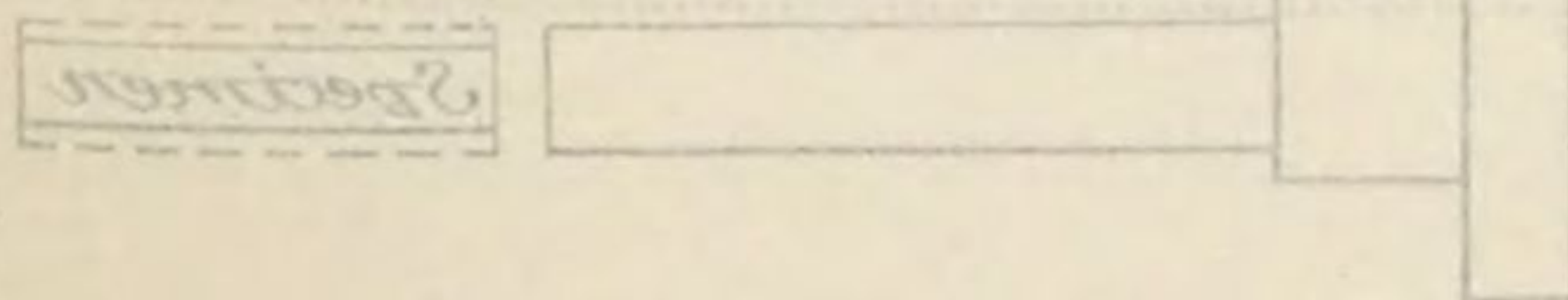
Diameter, .708.

Sectional area, .50 square inch.

Applied loads.		Change in length per inch.	Increase in volume per inch.	Permanent set.	Residual permanent set.	Remarks.
Pounds.	Per square inch.					
0	0	0.0000	0.0000	0	0	
100	200	0.0001	0.0001	0	0	
200	400	0.0002	0.0002	0	0	
300	600	0.0003	0.0003	0	0	
400	800	0.0004	0.0004	0	0	
500	1000	0.0005	0.0005	0	0	
600	1200	0.0006	0.0006	0	0	
700	1400	0.0007	0.0007	0	0	
800	1600	0.0008	0.0008	0	0	
900	1800	0.0009	0.0009	0	0	
1000	2000	0.0010	0.0010	0	0	
1100	2200	0.0011	0.0011	0	0	
1200	2400	0.0012	0.0012	0	0	
1300	2600	0.0013	0.0013	0	0	
1400	2800	0.0014	0.0014	0	0	
1500	3000	0.0015	0.0015	0	0	
1600	3200	0.0016	0.0016	0	0	
1700	3400	0.0017	0.0017	0	0	
1800	3600	0.0018	0.0018	0	0	
1900	3800	0.0019	0.0019	0	0	
2000	4000	0.0020	0.0020	0	0	
2100	4200	0.0021	0.0021	0	0	
2200	4400	0.0022	0.0022	0	0	
2300	4600	0.0023	0.0023	0	0	
2400	4800	0.0024	0.0024	0	0	
2500	5000	0.0025	0.0025	0	0	
2600	5200	0.0026	0.0026	0	0	
2700	5400	0.0027	0.0027	0	0	
2800	5600	0.0028	0.0028	0	0	
2900	5800	0.0029	0.0029	0	0	
3000	6000	0.0030	0.0030	0	0	
3100	6200	0.0031	0.0031	0	0	
3200	6400	0.0032	0.0032	0	0	
3300	6600	0.0033	0.0033	0	0	
3400	6800	0.0034	0.0034	0	0	
3500	7000	0.0035	0.0035	0	0	
3600	7200	0.0036	0.0036	0	0	
3700	7400	0.0037	0.0037	0	0	
3800	7600	0.0038	0.0038	0	0	
3900	7800	0.0039	0.0039	0	0	
4000	8000	0.0040	0.0040	0	0	
4100	8200	0.0041	0.0041	0	0	
4200	8400	0.0042	0.0042	0	0	
4300	8600	0.0043	0.0043	0	0	
4400	8800	0.0044	0.0044	0	0	
4500	9000	0.0045	0.0045	0	0	
4600	9200	0.0046	0.0046	0	0	
4700	9400	0.0047	0.0047	0	0	
4800	9600	0.0048	0.0048	0	0	
4900	9800	0.0049	0.0049	0	0	
5000	10000	0.0050	0.0050	0	0	

General Summary.

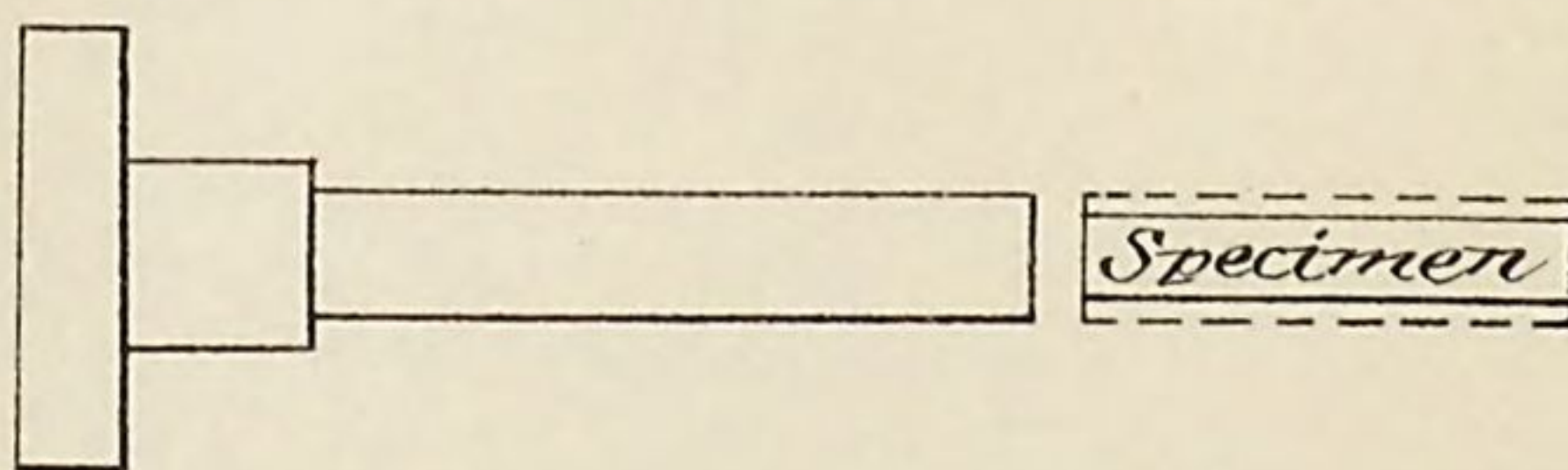
Specimens were taken from the stems of the obturators of the 7.5 millimeter B. L. rifles. The specimens were tested in the tensile machine, and the results are given in the table. The specimens were found to be of uniform quality, and the results show that they are capable of withstanding a tensile stress of 100,000 pounds per square inch.



H Ex 3 \ 40 2

Obturator Stem 3.2" Rifle

*General drawing showing
position from whence
specimens were taken.*



H Ex 3/ 49 2

SPECIMENS FROM STEEL OBTURATOR STEMS FOR 3".2 STEEL
B. L. RIFLES.

No. 556.

Marks, ³² O S₁
L₁

Length, 4".49.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000750	.000200	0.	.....	
15,000	30,000	.000900	.000150	0.	.....	
17,500	35,000	.001150	.000250	0.	.....	
20,000	40,000	.001200	.000050	0.	.....	
22,500	45,000	.001350	.000150	0.	.....	
25,000	50,000	.001500	.000150	0.	.....	
25,500	51,000	.001500	0.	.....	.....	
26,000	52,000	.001550	.000050	.....	.....	
26,500	53,000	.001550	0.	.....	.....	
27,000	54,000	.001600	.000050	.....	.....	
27,500	55,000	.001650	.000050	0.	.....	
28,000	56,000	.001650	0.	.....	.....	
28,500	57,000	.001700	.000050	.....	.....	
29,000	58,000	.001750	.000050	.....	.....	
29,500	59,000	.001750	0.			Elastic limit.
30,000	60,000	.001800	.000050	0.	.....	
30,500	61,000	.002000	.000200	.....	.....	
31,000	62,000	.002300	.000300	.....	.....	
31,500	63,000	.002750	.000450	.....	.....	
32,000	64,000	.003250	.000500			Ultimate strength.
32,500	65,000	.004000	.000750	.001800	.001800	
54,700	109,400	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 60,000
 Compression per inch under stress at elastic limit.....inch.. 0.001800
 Ultimate strength per square inch of original section.....pounds.. 109,400
 Manner of failure.....triple flexure

No. 557.

Marks, ^{32 O S₆}_{L₁}
Length, 4''¹¹.50.
Diameter, ''¹¹.798.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000300	.000150	0.	.....	
7,500	15,000	.000450	.000150	0.	.....	
10,000	20,000	.000600	.000150	0.	.....	
12,500	25,000	.000750	.000150	0.	.....	
15,000	30,000	.000900	.000150	0.	.....	
17,500	35,000	.001050	.000150	0.	.....	
20,000	40,000	.001200	.000150	0.	.....	
22,500	45,000	.001350	.000150	0.	.....	
25,000	50,000	.001500	.000150	0.	.....	
25,500	51,000	.001500	0.	.....	.....	
26,000	52,000	.001550	.000050	.....	.....	
26,500	53,000	.001550	0.	.....	.....	
27,000	54,000	.001600	.000050	.....	.....	
27,500	55,000	.001600	0.	0.	.....	
28,000	56,000	.001650	.000050	.....	.....	
28,500	57,000	.001650	0.	.....	.....	
29,000	58,000	.001700	.000050	.....	.....	
29,500	59,000	.001700	0.	.....	.....	
30,000	60,000	.001750	.000050	.000050	.000050	Elastic limit.
30,500	61,000	.001950	.000200	.....	.....	
31,000	62,000	.002350	.000400	.....	.....	
31,500	63,000	.002800	.000450	.....	.....	
32,000	64,000	.003300	.000500	.....	.....	
32,500	65,000	.004000	.000700	.001950	.001900	Ultimate strength.
55,450	110,900	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 60,000
Compression per inch under stress at elastic limit.....inch.. 0.001750
Ultimate strength per square inch of original section.....pounds.. 110,900
Manner of failure.....triple flexure

No. 558.

Marks, $^{32} O S_{10}$ Length, $4'' .50$.Diameter, $'' .798$.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000750	.000200	0.	.....	
15,000	30,000	.000900	.000150	0.	.....	
17,500	35,000	.001100	.000200	0.	.....	
20,000	40,000	.001300	.000200	0.	.....	
22,500	45,000	.001500	.000200	0.	.....	
25,000	50,000	.001650	.000150	0.	.....	
25,500	51,000	.001700	.000050	.....	.....	
26,000	52,000	.001750	.000050	.....	.....	
26,500	53,000	.001750	0.	.....	.....	
27,000	54,000	.001800	.000050	.....	.....	
27,500	55,000	.001800	0.	0.	.....	
28,000	56,000	.001850	.000050	.....	.....	
28,500	57,000	.001900	.000050	.....	.....	
29,000	58,000	.001900	.000050	.....	.....	
29,500	59,000	.001950	0.	.....	.....	
30,000	60,000	.002000	.000050	0.	.....	
30,500	61,000	.002000	0.	.....	.....	
31,000	62,000	.002050	.000050	.....	.....	
31,500	63,000	.002050	0.	.....	.....	
32,000	64,000	.002100	.000050	.....	.....	
32,500	65,000	.002150	.000050	0.	.....	
33,000	66,000	.002200	.000050	.....	.....	
33,500	67,000	.002200	0.	.....	.....	
34,000	68,000	.002250	.000050	.....	.....	
34,500	69,000	.002300	.000050	.....	.....	
35,000	70,000	.002300	0.	.000150	.000150	Elastic limit.
35,500	71,000	.002350	.000050	.....	.....	
36,000	72,000	.002350	0.	.....	.....	
36,500	73,000	.002400	.000050			Ultimate strength.
37,000	74,000	.002750	.000350	.....	.....	
37,500	75,000	.003250	.000500	.000600	.000750	
55,380	110,760					

General summary.

Elastic limit per square inch of original section	pounds..	73,000
Compression per inch under stress at elastic limit	inch..	0.002400
Ultimate strength per square inch of original section	pounds..	110,760
Manner of failure .....	.....	triple flexure

No. 559.

Marks, ³²O S₁₅
L₁
Length, 4''¹¹.50.
Diameter, ''⁷.798.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000750	.000200	0.	.....	
15,000	30,000	.000900	.000150	0.	.....	
17,500	35,000	.001050	.000150	0.	.....	
20,000	40,000	.001250	.000200	0.	.....	
22,500	45,000	.001400	.000150	0.	.....	
25,000	50,000	.001550	.000150	0.	.....	
25,500	51,000	.001600	.000050	.....	.....	
26,000	52,000	.001650	.000050	.....	.....	
26,500	53,000	.001650	0.	.....	.....	
27,000	54,000	.001700	.000050	.....	.....	
27,500	55,000	.001700	0.	0.	.....	
28,000	56,000	.001750	.000050	.....	.....	
28,500	57,000	.001800	.000050			Elastic limit.
29,000	58,000	.002050	.000250	.....	.....	
29,500	59,000	.002800	.000750	.....	.....	
30,000	60,000	.003800	.001000	.001550	.001550	
30,500	61,000	.004700	.000900	.....	.....	
31,000	62,000	.005500	.000800			Ultimate strength.
31,500	63,000	.006550	.001050	.....	.....	
32,000	64,000	.007750	.001200	.....	.....	
32,500	65,000	.008750	.001000	.006100	.004550	
52,240	104,480	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 57,000
Compression per inch under stress at elastic limit.....inch.. 0.001800
Ultimate strength per square inch of original section.....pounds.. 104,480
Manner of failure.....triple flexure

No. 560.

Marks, ^{32 O S₂₀}_{L₁}Length, 4''⁴⁹.Diameter, ''⁷⁹⁸.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	-----	
5,000	10,000	.000250	.000150	0.	-----	
7,500	15,000	.000400	.000150	0.	-----	
10,000	20,000	.000550	.000150	0.	-----	
12,500	25,000	.000750	.000200	0.	-----	
15,000	30,000	.000850	.000100	0.	-----	
17,500	35,000	.001000	.000150	0.	-----	
20,000	40,000	.001150	.000150	0.	-----	
22,500	45,000	.001350	.000200	0.	-----	
25,000	50,000	.001550	.000200	0.	-----	
25,500	51,000	.001550	0.	-----	-----	
26,000	52,000	.001600	.000050	-----	-----	
26,500	53,000	.001650	.000050	-----	-----	
27,000	54,000	.001700	.000050	-----	-----	
27,500	55,000	.001700	0.	0.	-----	
28,000	56,000	.001750	.000050	-----	-----	
28,500	57,000	.001750	0.	-----	-----	
29,000	58,000	.001800	.000050	-----	-----	
29,500	59,000	.001800	0.	-----	-----	
30,000	60,000	.001850	.000050	0.	-----	
30,500	61,000	.001900	.000050	-----	-----	
31,000	62,000	.002000	.000100	-----	-----	
31,500	63,000	.002100	.000100	-----	-----	Elastic limit.
32,000	64,000	.002400	.000300	-----	-----	
32,500	65,000	.002900	.000500	.000700	.000700	
33,000	66,000	.003300	.000400	-----	-----	
33,500	67,000	.003650	.000350	-----	-----	
34,000	68,000	.004050	.000400	-----	-----	Ultimate strength.
34,500	69,000	.004400	.000350	-----	-----	
35,000	70,000	.004850	.000450	.002400	.001700	
56,580	113,160	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section pounds.. 63,000
 Compression per inch under stress at elastic limit inch.. 0.002100
 Ultimate strength per square inch of original section pounds.. 113,160
 Manner of failure triple flexure

No. 561.

Marks, ^{32 O S₂₅}_{L₁}Length, 4¹¹.49.Diameter, ¹¹.798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000250	.000250	0.	-----	
5,000	10,000	.000400	.000150	0.	-----	
7,500	15,000	.000550	.000150	0.	-----	
10,000	20,000	.000750	.000200	0.	-----	
12,500	25,000	.000900	.000150	0.	-----	
15,000	30,000	.001050	.000150	0.	-----	
17,500	35,000	.001250	.000200	0.	-----	
20,000	40,000	.001400	.000150	0.	-----	
22,500	45,000	.001550	.000150	0.	-----	
25,000	50,000	.001700	.000150	.000050	.000050	
25,500	51,000	.001700	0.	-----	-----	
26,000	52,000	.001750	.000050	-----	-----	
26,500	53,000	.001750	0.	-----	-----	
27,000	54,000	.001800	.000050	-----	-----	
27,500	55,000	.001850	.000050	.000050	0.	
28,000	56,000	.001850	0.	-----	-----	
28,500	57,000	.001900	.000050	-----	-----	
29,000	58,000	.001950	.000050	-----	-----	
29,500	59,000	.001950	0.	-----	-----	
30,000	60,000	.002000	.000050	.000050	0.	
30,500	61,000	.002050	.000050	-----	-----	
31,000	62,000	.002100	.000050	-----	-----	
31,500	63,000	.002150	.000050	-----	-----	
32,000	64,000	.002250	.000100	-----	-----	Elastic limit.
32,500	65,000	.002300	.000050	.000250	.000200	
33,000	66,000	.002750	.000450	-----	-----	
33,500	67,000	.003150	.000400	-----	-----	
34,000	68,000	.003650	.000500	-----	-----	
34,500	69,000	.004100	.000450	-----	-----	Ultimate strength.
35,000	70,000	.004500	.000400	.002150	.001900	
56,080	112,160	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original sectionpounds.. 65,000
 Compression per inch under stress at elastic limit.....inch.. 0.002300
 Ultimate strength per square inch of original section.....pounds.. 112,160
 Manner of failuretriple flexure

TABULATION OF TENSION SPECIMENS FROM TUBES FOR 3".2 B. L. RIFLES.

[Location of specimens: Inside.]

No. of test.	Position in gun.	Elastic limit per square inch.	Tensile strength per square inch.	Elongation.	Contraction of area.	Appearance of fracture.	Specific gravity.
		<i>Pounds.</i>	<i>Pounds.</i>	<i>Per ct.</i>	<i>Per ct.</i>		
1689	Breech No. 1....	50,000	85,350	24.0	51.9	Silky.....	7.8615
1690	do.....	49,000	84,900	20.0	40.3	do.....	
1691	Muzzle No. 1....	48,000	85,200	15.0	34.0	Granular; dull spot.....	
1692	do.....	43,000	80,100	29.0	49.1	Silky.....	
*2274	do.....	43,000	81,050	25.0	40.3	Granular; dull spot.....	
*2275	do.....	48,000	84,400	15.0	23.9	do.....	
†2590	Breech No. 1....	56,000	93,400	18.5	40.3	Silky; flaky.....	
†2591	do.....	55,000	96,000	20.5	37.1	Silky, 80 per cent.; granular, 20 per cent.....	
†2592	Muzzle No. 1....	54,000	94,600	26.5	43.3	Silky; flaky.....	
†2593	do.....	53,000	91,900	23.5	43.3	Silky.....	
2596	Breech No. 2....	49,000	88,500	24.5	43.3	Silky; slightly granular.....	
2597	do.....	44,000	86,250	25.0	46.2	do.....	
2198	Muzzle No. 2....	48,000	85,350	24.0	46.2	Silky; trace of granulation.....	
2199	do.....	48,000	86,600	25.0	46.2	Silky.....	
1651	Breech No. 3....	58,000	95,100	23.5	49.1	Silky; trace of granulation.....	7.8705
1652	do.....	54,000	92,750	23.0	49.1	Silky.....	
1653	Muzzle No. 3....	54,000	92,900	12.0	13.0	Granular; flaky spot.....	
1654	do.....	54,000	93,400	19.5	43.3	Granular, 50 per cent.; silky, 50 per cent.....	
*2238	do.....	49,000	80,700	28.5	51.9	Silky.....	
*2239	do.....	39,000	74,550	28.5	49.1	do.....	
†2700	Breech No. 3....	52,000	93,750	23.5	46.2	do.....	
†2701	do.....	54,000	97,450	18.0	34.0	Granular; dull flaky center.....	
†2702	Muzzle No. 3....	56,000	99,100	22.0	40.3	Granular, 20 per cent.; silky, 80 per cent.....	
†2703	do.....	56,000	100,800	17.0	34.0	Granular; silky center.....	
1655	Breech No. 4....	46,000	84,900	25.0	49.1	Silky.....	7.8724
1656	do.....	44,000	80,400	20.5	37.1	Granular, 50 per cent.; silky, 50 per cent.....	
1657	Muzzle No. 4....	53,000	90,050	21.5	49.1	Silky.....	
1658	do.....	50,000	86,850	22.5	46.2	do.....	
2240	Breech No. 5....	49,000	85,150	22.5	51.9	do.....	7.8651
2241	do.....	46,000	85,700	23.5	51.9	Silky; trace of granulation.....	
2242	Muzzle No. 5....	55,000	84,500	22.5	51.6	Silky.....	
2243	do.....	53,000	86,050	20.5	49.1	do.....	
1693	Breech No. 6....	54,000	89,350	21.0	40.3	Granular; dull center.....	7.8702
1694	do.....	56,000	89,950	25.5	51.9	Silky.....	
1695	Muzzle No. 6....	51,000	87,100	24.5	51.9	do.....	
1696	do.....	53,000	89,300	23.5	51.9	do.....	
2200	Breech No. 7....	58,000	92,450	23.5	49.1	Granular; silky center.....	
2201	do.....	57,000	91,950	17.0	46.2	Granular, 50 per cent.; silky, 50 per cent.....	
2202	Muzzle No. 7....	50,000	83,000	24.0	49.1	Silky.....	
2203	do.....	52,000	86,000	22.5	49.1	do.....	
1659	Breech No. 8....	49,000	91,600	22.5	46.2	do.....	
1660	do.....	49,000	91,300	20.0	43.3	do.....	
1661	Muzzle No. 8....	53,000	87,350	22.0	46.2	do.....	
1662	do.....	54,000	88,700	24.5	43.3	do.....	
2204	Breech No. 9....	56,000	90,450	24.5	46.2	Granular, 60 per cent.; silky, 40 per cent.....	
2205	do.....	59,000	93,050	20.0	43.3	Granular; dull silky center.....	
2206	Muzzle No. 9....	56,000	92,400	21.0	43.3	Granular, 60 per cent.; silky, 40 per cent.....	
2207	do.....	55,000	90,100	21.5	46.2	Silky.....	
1176	Breech No. 10....	50,000	86,300	27.0	49.1	do.....	
1177	do.....	50,000	87,550	23.5	37.1	do.....	
1178	Muzzle No. 10....	49,000	87,500	20.0	49.1	do.....	
1179	do.....	50,000	89,050	20.0	46.2	do.....	
1663	Breech No. 11....	49,000	90,550	21.5	49.1	Silky.....	7.8657
1664	do.....	51,000	92,400	25.0	49.1	Silky; trace of granulation.....	
1665	Muzzle No. 11....	50,000	92,450	20.5	43.3	do.....	
1666	do.....	55,000	91,950	21.5	46.2	Silky.....	
1163	Breech No. 12....	54,000	92,250	20.5	43.3	do.....	7.8654
1164	do.....	54,000	89,050	22.5	49.1	do.....	
1165	Muzzle No. 12....	52,000	90,400	22.5	40.3	Silky, 90 per cent.; granular, 10 per cent.....	7.8601
1166	do.....	53,000	89,400	19.0	40.3	Silky.....	
1167	Breech No. 13....	53,000	91,950	19.5	46.2	do.....	
1168	do.....	53,000	90,300	19.0	46.2	do.....	
1169	Muzzle No. 13....	53,000	95,550	18.5	43.3	Silky, 50 per cent.; granular, 50 per cent.....	7.8590

* Additional specimen.

† New tube.

TABULATION OF TENSION SPECIMENS, ETC.—Continued.

[Location of specimens: Inside.]

No. of test.	Position in gun.	Elastic limit per square inch.	Tensile strength per square inch.	Elongation.	Contraction of area.	Appearance of fracture.	Specific gravity.
		<i>Pounds.</i>	<i>Pounds.</i>	<i>Per ct.</i>	<i>Per ct.</i>		
1170	Muzzle No. 13...	59,000	93,400	17.0	40.3	Silky, 40 per cent.; granular, 60 per cent.	.....
*2244	Breech No. 13...	49,000	84,850	22.0	46.2	Silky.....	.....
*2245	do	50,000	86,200	21.5	49.1	do .....	.....
*2246	Muzzle No. 13...	43,000	80,000	24.0	40.3	Silky, 50 per cent.; granular, 50 per cent.	.....
*2247	do	41,000	79,800	21.5	40.3	do .....	.....
1667	Breech No. 14...	57,000	96,200	16.5	30.7	Silky center, 40 per cent.; granular, 60 per cent.	7.8589
1668	do	58,000	100,000	15.0	34.0	Silky center; granular at circumference.	.....
1669	Muzzle No. 14...	55,000	90,400	19.0	40.3	Silky.....	.....
1670	do	54,000	91,800	20.0	46.2	Silky; trace of granulation.	.....
*2248	Breech No. 14...	47,000	86,850	20.0	37.1	Granular; dull center.	.....
*2249	do	48,000	88,250	19.0	37.1	Granular, 60 per cent.; dull silky, 40 per cent.	.....
*2251	Muzzle No. 14...	49,000	84,750	21.0	43.3	Silky, trace of granulation.	.....
2250	do	47,000	82,250	21.5	49.1	Silky.....	.....
2230	Breech No. 15...	53,000	85,850	21.0	43.3	do .....	.....
2231	do	55,000	88,900	24.0	46.2	do .....	.....
2232	Muzzle No. 15...	51,000	84,000	23.0	43.3	Silky; trace of granulation.	.....
2233	do	50,000	82,500	20.5	46.2	Silky.....	.....
2399	Breech No. 16...	52,000	89,400	7.0	9.5	Granular; flaky spot.	.....
2400	do	49,000	83,750	6.0	9.5	Granular; flaky line.	.....
2401	Muzzle No. 16...	51,000	86,900	23.5	43.3	Silky.....	.....
2402	do	50,000	86,600	20.0	43.3	do .....	.....
*2447	Breech No. 16...	51,000	91,950	19.0	37.1	Granular; dull flaky center.	.....
*2448	do	49,000	90,100	7.5	9.5	Granular; flaky spot.	.....
†2674	do	47,000	91,100	20.5	37.1	Granular, 60 per cent.; silky, 40 per cent.	.....
†2675	do	47,000	90,750	21.5	43.3	Granular, 40 per cent.; silky, 60 per cent.	.....
†2676	Muzzle No. 16...	47,000	87,150	24.0	49.1	Silky.....	.....
†2677	do	45,000	85,050	21.5	46.2	do .....	.....
2234	Breech No. 17...	49,000	84,600	23.5	40.3	Dull silky, 50 per cent.; granular, 50 per cent.	.....
2235	do	49,000	82,850	21.5	40.3	Silky, 90 per cent.; granular, 10 per cent.	.....
2236	Muzzle No. 17...	44,000	81,250	21.5	43.3	Silky; slightly granular.	.....
2237	do	45,000	80,950	22.5	46.2	do .....	.....
2264	Breech No. 18...	48,000	87,600	21.0	43.3	Silky; with fine granulation.	.....
2265	do	50,000	89,200	18.5	37.1	Granular; dull center.	.....
2266	Muzzle No. 18...	45,000	79,250	20.5	43.3	do .....	.....
2267	do	44,000	82,400	20.5	49.1	Silky.....	.....
1184	Breech No. 19...	52,000	87,450	23.0	43.3	do	7.8767
1185	do	50,000	87,450	21.5	43.3	do .....	.....
1186	Muzzle No. 19...	48,000	88,700	24.0	43.3	do .....	.....
1187	do	50,000	89,450	23.5	40.2	Silky; trace of granulation.	.....
1180	Breech No. 20...	50,000	88,500	20.5	46.2	Silky.....	7.8665
1181	do	52,000	92,250	21.0	43.3	Silky, 85 per cent.; granular, 15 per cent.	.....
1182	Muzzle No. 20...	49,000	86,450	25.0	51.9	Silky.....	.....
1183	do	49,000	88,800	21.0	43.3	do .....	.....
2258	Breech No. 21...	51,000	88,450	23.5	46.2	do .....	.....
2259	do	48,000	86,500	21.0	46.2	do .....	.....
2260	Muzzle No. 21...	47,000	86,050	20.5	46.2	do .....	.....
2261	do	50,000	90,250	18.5	40.3	Silky; with fine granulation.	.....
1697	Breech No. 22...	40,000	80,300	23.5	40.3	Dull, silky, and granular.	.....
1698	do	39,000	79,900	26.0	43.3	do .....	.....
1699	Muzzle No. 22...	45,000	83,400	26.0	46.2	Silky.....	.....
1700	do	53,000	89,950	24.0	43.3	do .....	.....
*2506	Breech No. 22...	41,000	75,500	27.5	51.9	do .....	.....
*2507	do	42,000	77,400	24.0	34.0	Granular, 60 per cent.; dull, flaky, 40 per cent.	.....
*2508	Muzzle No. 22...	52,000	85,050	25.0	46.2	Silky.....	.....
*2509	do	53,000	87,450	27.0	46.2	do .....	.....
1701	Breech No. 23...	53,000	91,050	23.0	40.3	Granular; dull center.	.....
1702	do	52,000	93,000	24.0	40.3	do .....	.....
1703	Muzzle No. 23...	56,000	93,350	20.0	40.3	do .....	.....
1705	do	57,000	93,900	21.0	43.3	do .....	.....
2047	Breech No. 24...	40,000	77,300	26.0	46.2	Silky.....	.....
2048	do	39,000	78,300	26.5	40.3	Granular, 40 per cent.; dull, silky, 60 per cent.	.....

*Additional specimen.

† New tube.

TABULATION OF TENSION SPECIMENS, ETC.—Continued.

[Location of specimens: Inside.]

No. of test.	Position in gun.	Elastic limit per square inch.	Tensile strength per square inch.	Elongation.	Contraction of area.	Appearance of fracture.	Specific gravity.
		<i>Pounds.</i>	<i>Pounds.</i>	<i>Per ct.</i>	<i>Per ct.</i>		
2049	Muzzle No. 24...	48,000	85,850	24.0	46.2	Silky.....	.....
2050	do	53,000	90,300	23.0	40.3	Silky, 40 per cent.; granular, 60 per cent.	.....
*2403	Breech No. 24...	42,000	75,300	22.0	49.1	Silky.....	.....
*2404	do	48,000	81,500	24.5	49.1	do.....	.....
*2405	Muzzle No. 24...	47,000	80,600	20.5	49.1	do.....	.....
*2406	do	54,000	84,100	23.5	46.2	do.....	.....
*2605	Breech No. 24...	55,000	90,400	21.5	46.2	do.....	.....
*2606	do	49,000	88,250	21.5	46.2	do.....	.....
*2607	Muzzle No. 24...	46,000	88,950	24.0	49.1	do.....	.....
*2608	do	47,000	84,500	8.5	13.2	Granular; flaky spot.....	.....
1706	Breech No. 25...	48,000	85,750	24.5	51.9	Silky.....	.....
1707	do	47,000	83,950	25.5	51.9	do.....	.....
1708	Muzzle No. 25...	52,000	88,500	25.5	51.9	do.....	.....
1709	do	45,000	83,000	21.5	51.9	do.....	.....

* Additional specimen.

TABULATION OF COMPRESSION SPECIMENS FROM TUBES FOR 3".2 B. L. RIFLES.

[Location of specimens: Inside.]

No. of test.	Position in gun.	Elastic limit per square inch.	Ultimate strength per square inch.	Manner of failure.
		<i>Pounds.</i>	<i>Pounds.</i>	
576	Breech No. 1.....	.....	94,400	Triple flexure.
*671	Breech No. 1.....	48,000	94,200	Do.
614	Breech No. 2.....	45,000	89,600	Do.
567	Breech No. 3.....	58,000	99,000	Do.
*670	Breech No. 3.....	47,000	99,380	Do.
568	Breech No. 4.....	40,000	88,080	Do.
622	Breech No. 5.....	48,000	93,600	Do.
577	Breech No. 6.....	54,000	96,600	Do.
615	Breech No. 7.....	54,000	95,200	Do.
569	Breech No. 8.....	48,000	95,300	Do.
616	Breech No. 9.....	62,000	97,600	Do.
564	Breech No. 10.....	50,000	90,200	Do.
570	Breech No. 11.....	50,000	96,600	Do.
562	Breech No. 12.....	57,000	95,720	Do.
563	Breech No. 13.....	58,000	96,180	Do.
†623	Breech No. 13.....	48,000	92,200	Do.
571	Breech No. 14.....	56,000	101,960	Do.
†624	Breech No. 14.....	47,000	92,600	Do.
620	Breech No. 15.....	50,000	93,800	Do.
647	Breech No. 16.....	49,000	93,000	Do.
†668	Breech No. 16.....	48,000	91,200	Do.
*702	Breech No. 16.....	47,000	90,420	Do.
621	Breech No. 17.....	48,000	88,800	Do.
632	Breech No. 18.....	46,000	89,400	Do.
565	Breech No. 19.....	52,000	90,900	Do.
566	Breech No. 20.....	50,000	99,220	Do.
631	Breech No. 21.....	49,000	89,980	Do.
578	Breech No. 22.....	36,000	87,600	Do.
653	Breech No. 22.....	43,000	76,020	Do.
579	Breech No. 23.....	.....	96,200	Do.
583	Breech No. 24.....	40,000	87,600	Do.
†648	Breech No. 24.....	38,000	81,300	Do.
†677	Breech No. 24.....	47,000	84,200	Do.
†595	Breech No. 25.....	50,000	91,600	Do.

* New tube.

† Additional specimen.

TABULATION OF TENSION SPECIMENS FROM JACKETS FOR 3" 2 B. L. RIFLES.

[Location of specimens: Middle.]

No. of test.	Position in gun.	Elastic limit per square inch.	Tensile strength per square inch.	Elongation.	Contraction of area.	Appearance of fracture.	Specific gravity.
		<i>Pounds.</i>	<i>Pounds.</i>	<i>Per ct.</i>	<i>Per ct.</i>		
962	Breech No. 1....	52,000	99,100	20.0	40.5	Dull silky.....	7.8695
963	do.....	50,000	95,000	16.5	24.0	Granular, 70 per cent.; silky, 30 per cent.; blow-hole.	.....
964	Breech No. 2....	60,000	106,000	16.5	30.5	Granular line of silky metal.	7.8656
965	do.....	57,000	99,400	18.5	43.5	Silky; trace of granulation..	.....
986	Muzzle No. 3....	60,000	107,300	13.0	13.2	Granular line of dull metal..	7.8590
987	do.....	57,000	107,250	15.0	23.9	Granular.....	.....
*2082	do.....	50,000	96,600	21.5	40.3	Granular; dull center.....	.....
*2083	do.....	50,000	94,600	21.5	30.7	Granular.....	.....
*2084	do.....	49,000	94,250	10.5	13.2	Granular line of dull-colored metal.	.....
*2396	do.....	51,000	99,700	20.5	43.3	Silky, with granular metal..	.....
*2397	do.....	49,000	96,400	22.0	43.3	Silky; traces of granulation..	.....
*2398	do.....	49,000	95,250	14.5	20.5	Granular line of flaky metal..	.....
966	Muzzle No. 4....	59,000	104,100	10.5	13.5	Granular line of silky metal..	7.8666
967	do.....	52,000	104,000	18.0	17.5	do.....	.....
*2085	do.....	50,000	94,350	21.0	40.3	Granular; dull center.....	.....
*2086	do.....	50,000	91,900	20.5	40.3	Granular; dull spot.....	.....
*2087	do.....	50,000	93,350	22.5	37.1	do.....	.....
988	Muzzle No. 5....	56,000	100,900	19.5	37.1	Granular; dull silky center..	7.8750
989	do.....	56,000	100,000	13.5	20.5	Granular line of dull metal..	.....
†2262	Breech No. 5....	55,000	95,800	25.0	49.1	Silky.....	.....
†2263	do.....	60,000	101,650	20.5	27.4	Granular, radiating from dull spot.	.....
1033	Muzzle No. 6....	48,000	94,450	21.0	43.3	Silky.....	7.8593
1102	do.....	48,000	94,750	21.5	46.2	Silky; interspersed with granulation.	.....
1110	Muzzle No. 7....	46,000	93,050	21.5	43.3	Silky.....	7.8671
1111	do.....	45,000	90,500	23.5	30.7	do.....	.....
*2221	Breech No. 7....	47,000	93,450	21.5	43.3	Silky; interspersed with fine granulation.	.....
*2222	do.....	48,000	95,800	15.0	20.5	Granular; dull spot.....	.....
*2223	do.....	46,000	93,800	20.0	20.5	do.....	.....
*2416	do.....	49,000	101,000	19.0	34.0	Granular, 60 per cent.; silky, 40 per cent.	.....
*2417	do.....	52,000	105,200	15.5	30.7	Granular; dull center.....	.....
1112	Breech No. 8....	46,000	91,400	24.5	37.1	Silky, 60 per cent.; granular, 40 per cent.	7.8694
1113	do.....	45,000	94,000	17.5	27.4	Granular; dull spot.....	.....
*2215	Muzzle No. 8....	48,000	96,100	21.5	34.0	do.....	.....
*2216	do.....	44,000	90,350	13.5	16.9	do.....	.....
*2217	do.....	47,000	93,300	18.0	27.4	do.....	.....
†2547	do.....	52,000	105,600	18.5	34.0	Granular; dull center.....	.....
†2548	do.....	53,000	108,050	10.0	13.2	Granular.....	.....
*2720	do.....	53,000	108,100	18.5	30.7	Granular; silky center.....	.....
*2721	do.....	52,000	105,100	17.0	34.0	Granular; silky spot.....	.....
*2722	do.....	53,000	105,900	19.0	34.0	Granular; dull silky center..	.....
1114	Breech No. 9....	50,000	98,750	17.5	37.1	Silky.....	7.8641
1115	do.....	48,000	99,600	12.5	5.7	Granular; defective spot....	.....
*2212	do.....	49,000	94,900	23.5	30.7	Silky.....	.....
*2213	do.....	48,000	89,500	10.5	13.2	Granular; dull flaky spot....	.....
*2214	do.....	49,000	94,100	20.0	43.3	Silky.....	.....
†2549	do.....	51,000	106,400	17.0	37.1	Granular; dull center.....	.....
†2550	do.....	52,000	105,900	17.5	30.7	Granular; dull spot.....	.....
2224	Breech No. 10...	55,000	98,850	18.0	43.3	Silky.....	.....
2225	do.....	57,000	103,800	15.5	30.7	Granular; dull spot.....	.....
2519	Breech No. 11...	48,000	97,500	16.5	27.4	do.....	.....
2520	do.....	47,000	96,500	12.0	13.2	Granular; cracks in stem....	.....
†2711	do.....	51,000	98,400	21.0	34.0	Silky, 40 per cent.; granular 60 per cent.	.....
†2712	do.....	50,000	98,800	21.0	43.3	Silky; trace of granulation..	.....
2226	Breech No. 12...	56,000	96,500	26.0	43.3	Silky.....	.....
2227	do.....	53,000	90,000	28.5	51.9	do.....	.....
2078	Breech No. 13...	50,000	95,550	19.0	40.3	Granular; silky center.....	.....
2079	do.....	52,000	97,550	19.0	37.1	Granular; dull center.....	.....
2088	Breech No. 14...	53,000	93,600	21.0	43.3	Silky.....	.....
2089	do.....	54,000	95,300	22.5	40.3	Silky; trace of granulation..	.....
2228	Muzzle No. 15...	53,000	101,550	21.0	37.1	Granular; dull center.....	7.8613
2229	do.....	50,000	100,300	21.5	37.1	do.....	.....
2280	Muzzle No. 16...	54,000	101,250	16.5	23.9	Granular; dull spot.....	.....
2281	do.....	56,000	99,050	22.0	43.3	Silky; in part fine granular..	.....

*Additional specimen.

† New jacket.

TABULATION OF TENSION SPECIMENS, ETC.—Continued.

[Location of specimens: Middle.]

No. of test.	Position in gun.	Elastic limit per square inch.	Tensile strength per square inch.	Elongation.	Contraction of area.	Appearance of fracture.	Specific gravity.
		<i>Pounds.</i>	<i>Pounds.</i>	<i>Per ct.</i>	<i>Per ct.</i>		
2080	Breech No. 17...	48,000	95,600	21.0	34.0	Granular; dull spot	
2081	do	48,000	96,700	21.0	40.3	Silky, with fine granulation.	
*2545	Muzzle No. 17...	52,000	102,400	18.0	40.3	Dull silky	
*2546	do	48,000	94,500	22.5	43.3	do	
2076	Breech No. 18...	45,000	94,450	20.5	37.1	Granular, 60 per cent.; silky, 40 per cent.	
2077	do	46,000	96,800	20.0	37.1	Granular, 50 per cent.; silky, 50 per cent.	
*2521	Muzzle No. 18...	49,000	98,700	15.5	23.9	Granular, 60 per cent.; silky, 40 per cent.	
*2522	do	49,000	100,400	20.0	37.1	Silky; trace of granulation..	
2090	Breech No. 19...	63,000	109,800	18.5	40.3	Silky	
2091	do	58,000	99,900	21.0	46.2	do	
2252	Muzzle No. 20...	52,000	88,500	24.5	46.2	do	
2253	do	57,000	89,600	17.0	27.4	do	
2194	Breech No. 21...	53,000	88,400	18.0	20.5	Silky; flaky	
2195	do	50,000	86,750	24.0	34.0	Silky	
*2418	do	46,000	95,550	22.0	43.3	do	
*2419	do	47,000	92,550	21.5	46.2	do	
†2698	Muzzle No. 21...	57,000	107,900	14.0	20.5	Granular; dull spot	
†2699	do	57,000	107,400	22.5	37.1	Silky	
*2616	do	55,000	102,450	23.5	46.2	do	
*2617	do	54,000	102,100	23.5	30.7	Granular; silky spot	
2254	Muzzle No. 22...	62,000	109,050	19.5	30.7	Granular; dull metal at circumference.	
2255	do	59,000	102,450	20.0	43.3	Silky; trace of granulation..	
2276	Breech No. 23...	56,000	95,000	21.0	34.0	Granular; dull spot	
2277	do	58,000	99,850	24.0	43.3	Silky; trace of granulation..	
2256	Muzzle No. 24...	59,000	103,550	21.5	43.3	Silky, with fine granulation..	
2257	do	57,000	101,600	20.0	40.3	Silky	
2278	Muzzle No. 25...	54,000	96,600	25.0	49.1	do	
2279	do	53,000	94,000	26.0	49.1	do	

*Additional specimen.

†New jacket.

TABULATION OF COMPRESSION SPECIMENS FROM JACKET FOR 3".2
B. L. RIFLES.

[Location of specimens: Middle.]

No. of test.	Position in gun.	Elastic limit per square inch.	Ultimate strength per square inch.	Manner of failure.
		<i>Pounds.</i>	<i>Pounds.</i>	
531	Breech No. 1	48,000	95,800	Triple flexure.
532	Breech No. 2	54,000	100,100	Do.
529	Muzzle No. 3	59,000	105,800	Do.
533	Muzzle No. 4	58,000	104,000	Do.
530	Muzzle No. 5	54,000	99,300	Do.
*633	Breech No. 5	55,000	100,000	Do.
537	Muzzle No. 6	50,000	95,200	Do.
541	Muzzle No. 7	48,000	96,200	Do.
651	Breech No. 7	45,000	92,800	Do.
554	Breech No. 8	42,000	89,000	Do.
*660	Muzzle No. 8	54,000	104,640	Do.
555	Breech No. 9	54,000	94,800	Do.
*661	Breech No. 9	51,000	100,800	Do.
617	Breech No. 10	50,000	96,200	Do.
649	Breech No. 11	43,000	91,760	Do.
*676	Breech No. 11	51,000	98,200	Do.
618	Breech No. 12	55,000	91,600	Do.
609	Breech No. 13	54,000	99,800	Do.
611	Breech No. 14	46,000	92,000	Do.
619	Muzzle No. 15	50,000	99,000	Do.
636	Muzzle No. 16	57,000	96,020	Do.
610	Breech No. 17	47,000	89,600	Do.
†658	Muzzle No. 17	49,000	99,920	Do.
608	Breech No. 18	46,000	104,400	Do.
†650	Muzzle No. 18	51,000	102,640	Do.
612	Breech No. 19	54,000	99,800	Do.
628	Muzzle No. 20	50,000	91,000	Do.
613	Breech No. 21	49,000	85,600	Do.
†652	do	48,000	97,600	Do.
*669	Muzzle No. 21	56,000	101,920	Do.
†678	do	54,000	97,160	Do.
629	Muzzle No. 22	55,000	96,360	Do.
634	Breech No. 23	55,000	95,040	Do.
630	Muzzle No. 24	57,000	98,160	Do.
635	Breech No. 25	56,000	94,500	Do.

* New jacket.

† Additional specimen.

TABULATION OF TENSION SPECIMENS FROM TRUNNION-HOOPS FOR 3" 2 B. L. RIFLES.

[Location of specimens: Middle.]

No. of test.	Position in gun.	Elastic limit per square inch.	Tensile strength per square inch.	Elongation.	Contraction of area.	Appearance of fracture.	Specific gravity.
		<i>Pounds.</i>	<i>Pounds.</i>	<i>Per ct.</i>	<i>Per ct.</i>		
2051	T. hoop No. 1	47,000	90,400	8.5	5.7	Granular	7.8754
2052	do	48,000	90,000	9.5	5.7	Granular; surface cracks	
2053	do	50,000	91,480	12.0	13.2	do	
*2374	do	54,000	100,000	15.5	20.5	do	
*2375	do	55,000	97,900	21.0	51.9	Silky	
*2376	do	56,000	101,100	16.0	27.4	Granular; surface cracks	
2218	T. hoop No. 2	52,000	91,850	14.0	16.9	do	
2219	do	54,000	87,550	19.5	30.7	Silky; granular spot	
2220	do	54,000	87,500	10.5	13.2	Granular; surface cracks	
*2510	do	53,000	95,900	15.5	43.3	Granular; dull spot	
*2511	do	58,000	102,100	14.5	23.9	do	
*2512	do	55,000	98,700	20.5	49.1	Silky	
2282	T. hoop No. 3	52,000	98,250	19.5	27.4	Granular; surface cracks	
2283	do	52,000	98,300	19.5	34.0	Granular; dull spot	
2284	do	51,000	98,100	13.5	13.2	Granular; surface cracks	
2377	T. hoop No. 4	51,000	99,600	16.0	7.5	do	
2378	do	51,000	99,300	18.0	30.7	do	
2379	do	54,000	99,600	20.0	27.4	Granular; dull spot	
2466	T. hoop No. 5	56,000	100,900	19.0	34.0	do	
2467	do	56,000	100,500	18.5	34.0	Granular, 60 per cent.; silky, 40 per cent.	
2468	do	52,000	97,800	17.5	27.4	Granular; surface cracks	7.8754
2285	T. hoop No. 6	53,000	97,750	21.0	40.3	Silky and fine granular	
2286	do	52,000	95,600	22.5	37.1	Silky; trace of granular	
2287	do	52,000	98,100	24.0	40.3	Silky, 50 per cent.; granular, 50 per cent.	
2451	T. hoop No. 7	52,000	97,600	22.5	37.1	Silky; trace of granular	
2452	do	51,000	93,500	7.0	9.5	Granular; dull spot	
2453	do	51,000	98,800	23.5	40.3	Silky	
†2441	do	60,000	100,000	21.0	43.3	do	
†2442	do	52,000	93,900	26.0	49.1	do	
†2443	do	55,000	96,400	24.5	49.1	do	
2454	T. hoop No. 8	53,000	97,500	23.0	43.3	do	
2455	do	52,000	96,950	19.0	40.3	Silky; trace of granular	
2456	do	52,000	97,600	22.5	43.3	do	
2969	T. hoop No. 9	54,000	99,600	20.0	43.3	Silky	
2470	do	52,000	96,300	26.0	43.3	do	
2471	do	54,000	97,250	23.0	46.2	do	
2472	T. hoop No. 10	51,000	96,500	20.0	43.3	do	
2473	do	49,000	95,200	22.0	37.1	Silky and fine granular	
2474	do	53,000	96,500	25.0	46.2	Silky	
2380	T. hoop No. 11	51,000	95,500	19.0	40.3	Silky, 50 per cent.; granular, 50 per cent.	
2381	do	52,000	96,500	21.5	40.3	Silky, 60 per cent.; granular, 40 per cent.	
2382	do	50,000	94,600	23.0	40.3	Silky	
2386	T. hoop No. 12	51,000	95,800	21.5	43.3	do	
2387	do	51,000	97,750	22.0	40.3	Silky, 50 per cent.; granular, 50 per cent.	
2388	do	49,000	94,600	19.0	34.0	Silky, 40 per cent.; granular, 60 per cent.	
2288	T. hoop No. 13	52,000	98,600	14.0	13.2	Granular; dull spot	7.8754
2289	do	49,000	94,750	20.5	30.7	Granular; surface cracks	
2290	do	52,000	98,100	22.5	40.3	Granular, 60 per cent.; dull silky, 40 per cent.	
2291	T. hoop No. 14	50,000	98,050	19.0	37.1	do	
2292	do	51,000	100,100	20.0	30.7	Granular; small dull spot	
2293	do	51,000	98,400	15.5	27.4	Granular	
2383	T. hoop No. 15	51,000	96,250	20.0	37.1	Granular; dull spot	
2384	do	50,000	88,000	5.5	5.7	Granular	
2385	do	49,000	94,900	21.5	37.1	Granular; dull spot	
†2444	do	55,000	95,800	26.0	54.6	Silky	
†2445	do	54,000	95,050	25.0	46.2	do	
†2446	do	54,000	95,600	25.0	51.9	do	
2457	T. hoop No. 16	50,000	96,500	14.5	16.9	Granular; dull spot	
2458	do	52,000	98,300	16.5	27.4	do	
2459	do	50,000	87,900	13.5	5.7	Granular	
†2449	do	52,000	98,200	20.0	37.1	Silky; trace of granular	
†2450	do	52,000	99,000	22.0	37.1	do	
†2450a	do	51,000	97,950	19.5	34.0	Granular; dull spot	
2460	T. hoop No. 17	52,000	99,600	20.0	37.1	Granular, 70 per cent.; silky, 30 per cent.	

* New trunnion-hoop.

† Additional specimen.

*TABULATION OF TENSION SPECIMENS FROM TRUNNION-HOOPS FOR
3".2 B. L. RIFLES—Continued.*

[Location of specimens: Middle.]

No. of test.	Position in gun.	Elastic limit per square inch.	Tensile strength per square inch.	Elongation.	Contraction of area.	Appearance of fracture.	Specific gravity.
		<i>Pounds.</i>	<i>Pounds.</i>	<i>Per ct.</i>	<i>Per ct.</i>		
2461	T. hoop No. 17..	54,000	101,000	20.0	43.0	Silky.....	7.8754
2462	...do	51,000	98,550	18.0	37.1	Granular, 50 per cent.; silky, 50 per cent.	
2392	T. hoop No. 18..	53,000	95,250	5.5	9.5	Granular.....	
2393	...do	53,000	98,900	16.0	20.5	...do	
2394	...do	54,000	97,000	22.5	40.3	Granular, 60 per cent.; silky, 40 per cent.	
†2570	...do	47,000	88,800	23.0	34.0	Granular; dull silky spot....	
†2571	...do	45,000	83,500	30.5	59.8	Fine silky.....	
†2572	...do	44,000	84,200	31.0	59.8	Silky.....	
†2609	...do	50,000	95,050	20.0	37.1	Granular, 60 per cent.; silky, 40 per cent.	
†2610	...do	51,000	94,900	19.5	30.7	Granular, 75 per cent.; silky, 25 per cent.	
†2611	...do	49,000	94,700	19.5	34.0	Granular, 60 per cent.; silky, 40 per cent.	
2587	T. hoop No. 19..	55,000	105,350	14.0	16.9	Granular; dull spot.....	
2588	...do	55,000	106,400	18.5	23.9	Granular; surface cracks....	
2589	...do	54,000	103,600	17.5	16.9	Granular; dull spot.....	
2513	T. hoop No. 20..	51,000	98,400	18.5	30.7	...do	
2514	...do	51,000	98,900	5.0	5.7	Granular.....	
2515	...do	51,000	96,500	11.5	9.5	...do	
†2573	...do	48,000	94,000	23.5	40.3	Silky, with fine granulation	
†2574	...do	48,000	94,500	23.5	40.3	...do	
†2575	...do	46,000	90,500	26.0	49.1	Fine, silky	
2389	T. hoop No. 21..	49,000	87,750	8.0	9.5	Granular; surface cracks....	
2390	...do	48,000	86,000	10.0	9.5	...do	
2391	...do	49,000	89,950	20.0	37.1	Granular; dull spot.....	
†2438	...do	48,000	88,150	28.0	51.9	Fine silky.....	
†2439	...do	51,000	90,700	25.0	49.1	...do	
†2440	...do	50,000	88,050	29.0	51.9	...do	
2516	T. hoop No. 22..	52,000	98,100	20.0	34.0	Granular; dull spot.....	
2517	...do	51,000	96,250	15.0	16.9	...do	
2518	...do	51,000	96,300	20.0	37.1	Granular, 60 per cent.; silky, 40 per cent.	
2475	T. hoop No. 23..	52,000	95,000	13.0	16.9	Granular; dull spot.....	
2476	...do	52,000	96,000	16.0	30.7	...do	
2477	...do	51,000	93,700	15.0	27.4	...do	
2294	T. hoop No. 24..	52,000	94,900	23.5	51.9	Silky	
2295	...do	51,000	95,000	14.0	16.9	Granular; surface cracks....	
2296	...do	52,000	93,000	9.0	9.5	Granular; crack in stem....	
†2523	...do	59,000	95,100	24.0	9.5	Fine, silky	
†2524	...do	56,000	95,800	26.0	57.2	...do	
†2525	...do	56,000	95,200	25.0	57.2	...do	
2463	T. hoop No. 25..	54,000	98,400	11.0	16.9	Granular; dull spot.....	
2464	...do	52,000	96,750	16.5	23.9	...do	
2465	...do	54,000	96,200	19.0	37.1	Silky	
†2704	...do	55,000	96,950	22.5	51.9	...do	
†2705	...do	53,000	96,500	19.5	37.1	...do	
†2706	...do	55,000	98,250	13.5	30.7	Granular; dull spot.....	

† Additional specimen.

‡ New trunnion-hoop.

**TABULATION OF TENSION SPECIMENS FROM BREECH-BLOCKS FOR 3".2
B. L. RIFLES.**

[Location of specimens: Inside.]

No. of test.	Position in gun.	Elastic limit per square inch.	Tensile strength per square inch.	Elonga- tion.	Contraction of area.	Appearance of fracture.	Specific grav- ity.
		<i>Pounds.</i>	<i>Pounds.</i>	<i>Per ct.</i>	<i>Per ct.</i>		
2054	B. block No. 1..	50,000	102,600	15.5	27.4	Granular; dull center.....	7.8671
2044	B. block No. 2..	54,000	102,000	17.0	34.0	do.....	7.8661
2055	B. block No. 3	51,000	97,600	18.5	27.4	do.....	7.8691
2064	B. block No. 4..	53,000	100,300	16.0	34.0	do.....	
2056	B. block No. 5..	50,000	97,800	18.5	30.7	do.....	7.8555
2057	B. block No. 6..	54,000	106,750	17.5	30.7	Granular; dull spot.....	7.8575
2075	B. block No. 7	50,000	96,300	19.0	37.1	Granular; dull center.....	
2043	B. block No. 8..	54,000	101,500	18.5	34.0	do.....	7.8602
2058	B. block No. 9..	55,000	104,000	18.0	30.7	do.....	7.8649
2059	B. block No. 10..	49,000	100,600	15.5	27.4	do.....	7.8578
2065	B. block No. 11..	55,000	106,700	17.5	30.7	do.....	
2066	B. block No. 12..	52,000	99,100	21.5	34.0	do.....	
2067	B. block No. 13..	55,000	101,500	16.0	30.7	do.....	
2069	B. block No. 14..	54,000	101,400	16.0	34.0	do.....	
2070	B. block No. 15..	50,000	103,025	16.5	27.4	do.....	
2061	B. block No. 16..	52,000	102,400	16.0	30.7	do.....	
2071	B. block No. 17..	52,000	100,050	17.0	34.0	do.....	
2060	B. block No. 18..	53,000	103,100	18.0	34.0	Granular; dull spot.....	
2072	B. block No. 19..	52,000	99,900	19.5	34.0	Granular; dull center.....	
2062	B. block No. 20..	47,000	97,900	16.5	30.7	Granular; dull spot.....	
2073	B. block No. 21..	49,000	101,550	16.0	34.0	do.....	
2063	B. block No. 22..	50,000	99,350	18.0	34.0	Granular; dull center.....	
2074	B. block No. 23..	47,000	99,150	15.5	30.7	do.....	
2068	B. block No. 24..	49,000	98,700	20.5	30.7	do.....	
2045	B. block No. 25..	44,000	95,600	19.0	30.7	do.....	
*2395	B. block No. 25..	60,000	99,950	22.5	43.3	Silky.....	

*Additional specimen.

**TABULATION OF COMPRESSION SPECIMENS FROM BREECH-BLOCKS
FOR 3".2 B. L. RIFLES.**

[Location of specimens: Inside.]

No. of test.	Position in gun.	Elastic limit per square inch.	Ultimate strength per square inch.	Manner of failure.
		<i>Pounds.</i>	<i>Pounds.</i>	
584	B. block No. 1	57,000	106,200	Triple flexure.
581	B. block No. 2	54,000	108,400	Do.
585	B. block No. 3	52,000	104,600	Do.
596	B. block No. 4	53,000	107,200	Do.
586	B. block No. 5	52,000	108,200	Do.
587	B. block No. 6	57,000	113,200	Do.
607	B. block No. 7	52,000	105,400	Do.
580	B. block No. 8	54,000	109,200	Do.
588	B. block No. 9	55,000	110,800	Do.
589	B. block No. 10	49,000	110,800	Do.
597	B. block No. 11	52,000	112,200	Do.
598	B. block No. 12	51,000	107,200	Do.
599	B. block No. 13	52,000	113,400	Do.
601	B. block No. 14	57,000	111,800	Do.
602	B. block No. 15	52,000	113,800	Do.
592	B. block No. 16	53,000	106,400	Do.
603	B. block No. 17	50,000	105,000	Do.
591	B. block No. 18	60,000	110,800	Do.
604	B. block No. 19	54,000	105,000	Do.
593	B. block No. 20	45,000	101,400	Do.
605	B. block No. 21	50,000	107,800	Do.
594	B. block No. 22	53,000	107,000	Do.
606	B. block No. 23	47,000	103,600	Do.
600	B. block No. 24	50,000	105,400	Do.
582	B. block No. 25	47,000	103,000	Do.
*646	B. block No. 25	61,000	106,320	Do.

*Additional specimen.

*TABULATION OF TENSION SPECIMENS FROM BASE-RINGS FOR 3".2
B. L. RIFLES.*

[Location of specimens: Middle.]

No. of test.	Position in gun.	Elastic limit per square inch.	Tensile strength per square inch.	Elonga- tion.	Contraction of area.	Appearance of fracture.	Specific grav- ity.
		<i>Pounds.</i>	<i>Pounds.</i>	<i>Per ct.</i>	<i>Per ct.</i>		
1030	B. ring No. 1...	52,000	103,550	19.0	30.7	Granular; dull center.....	7.8678
1031	B. ring No. 5...	57,000	110,500	15.0	23.9	do.....	7.8667
1032	B. ring No. 10...	53,000	102,900	17.0	34.0	do.....	7.8646
1103	B. ring No. 15...	57,000	109,000	19.5	30.7	Granular; dull spot.....	7.8623
1104	B. ring No. 20...	59,000	107,750	16.5	34.0	Granular; dull, silky center.	7.8616
1105	B. ring No. 25...	47,000	102,900	19.0	30.7	Granular; dull spot.....	7.8672

*TABULATION OF COMPRESSION SPECIMENS FROM BASE-RINGS FOR
3".2 B. L. RIFLES.*

[Location of specimens: Middle.]

No. of test.	Position in gun.	Elastic limit per square inch.	Ultimate strength per square inch.	Manner of failure.
		<i>Pounds.</i>	<i>Pounds.</i>	
534	B. ring No. 1.....	49,000	101,100	Triple flexure.
535	B. ring No. 5.....	57,000	108,480	Do.
536	B. ring No. 10.....	59,000	105,800	Do.
538	B. ring No. 15.....	59,000	106,840	Do.
539	B. ring No. 20.....	51,000	100,960	Do.
540	B. ring No. 25.....	50,000	95,900	Do.

TABULATION OF SPECIMENS FROM SLEEVES FOR 3".2 B. L. RIFLES.

[Location of specimens: Inside.]

No. of test.	Position in gun.	Elastic limit per square inch.	Tensile strength per square inch.	Elonga- tion.	Contraction of area.	Appearance of fracture.	Specific grav- ity.
		<i>Pounds.</i>	<i>Pounds.</i>	<i>Per ct.</i>	<i>Per ct.</i>		
1106	Sleeve No. 1....	61,000	109,500	20.5	40.3	Silky, 80 per cent.; granular, 20 per cent.	7.8621
1107	Sleeve No. 5....	56,000	106,500	15.0	30.7	Granular; dull center.....	7.8627
1108	Sleeve No. 10...	55,000	105,000	18.5	34.0	Granular, 50 per cent.; dull silky, 50 per cent.	7.8636
1109	Sleeve No. 15...	59,000	110,000	15.5	30.7	Granular; dull, silky center.	7.8655
2191	Sleeve No. 16...	58,000	104,050	13.0	23.9	Granular; dull spot.....	
*2407	Sleeve No. 16...	56,000	98,400	10.0	13.2	Granular; crack in stem....	
2505	Sleeve No. 20...	54,000	97,000	25.0	54.6	Silky.....	
2192	Sleeve No. 21...	54,000	100,000	19.0	40.3	Granular; dull center.....	
2193	Sleeve No. 25...	54,000	104,450	17.0	34.0	do.....	

*Additional specimen.

*TABULATION OF COMPRESSION SPECIMENS FROM OBTURATOR STEMS
FOR 3".2 B. L. RIFLES.*

[Location of specimens: End.]

No. of test.	Position in gun.	Elastic limit per square inch.	Ultimate strength per square inch.	Manner of failure.
		<i>Pounds.</i>	<i>Pounds.</i>	
556	Obturator stem No. 1	60,000	109,400	Triple flexure.
557	Obturator stem No. 5	60,000	110,900	Do.
558	Obturator stem No. 10	73,000	110,760	Do.
559	Obturator stem No. 15	57,000	104,480	Do.
560	Obturator stem No. 20	63,000	113,160	Do.
561	Obturator stem No. 25	65,000	112,160	Do.

5-INCH STEEL B. L. RIFLE NO. 1.

STEEL SPECIMENS

FROM

TUBE, JACKET, TRUNNION-HOOP, BREECH-BLOCK, BASE-RING,
SLEEVE, AND OBTURATOR STEM.

THE UNIVERSITY OF CHICAGO

STUDY OF THE

BY

THE UNIVERSITY OF CHICAGO
PRESS AND OFFICE OF THE

SPECIMENS FROM 6-INCH STEEL B. L. RIFLE NO. 1.

No. 2530.

Mark, 38 T

Diameter, 6.005.

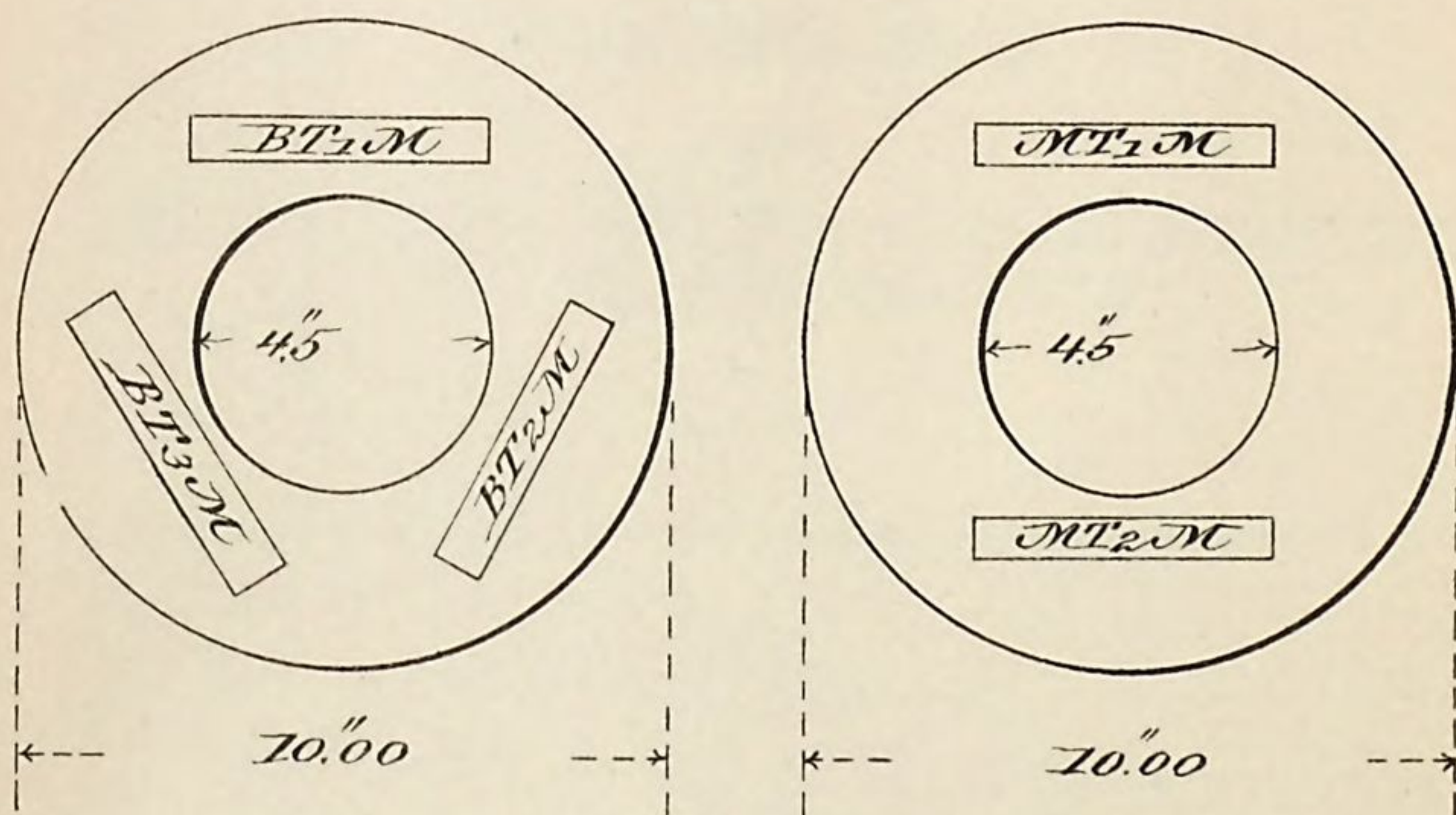
Sectional area, .20 square inch.

Applied force.		Elongation.		Reduction of area.		Remarks.
Force.	Distance.	Force.	Distance.	Force.	Distance.	
1,000	1.000	1,000	1.000	1,000	1.000	Tensile
2,000	2.000	2,000	2.000	2,000	2.000	
3,000	3.000	3,000	3.000	3,000	3.000	
4,000	4.000	4,000	4.000	4,000	4.000	
5,000	5.000	5,000	5.000	5,000	5.000	
6,000	6.000	6,000	6.000	6,000	6.000	
7,000	7.000	7,000	7.000	7,000	7.000	
8,000	8.000	8,000	8.000	8,000	8.000	
9,000	9.000	9,000	9.000	9,000	9.000	
10,000	10.000	10,000	10.000	10,000	10.000	
11,000	11.000	11,000	11.000	11,000	11.000	Tensile
12,000	12.000	12,000	12.000	12,000	12.000	
13,000	13.000	13,000	13.000	13,000	13.000	
14,000	14.000	14,000	14.000	14,000	14.000	
15,000	15.000	15,000	15.000	15,000	15.000	
16,000	16.000	16,000	16.000	16,000	16.000	
17,000	17.000	17,000	17.000	17,000	17.000	
18,000	18.000	18,000	18.000	18,000	18.000	
19,000	19.000	19,000	19.000	19,000	19.000	
20,000	20.000	20,000	20.000	20,000	20.000	

H Ex 3/ 40 S

5" Steel B.L. Rifle No. 1

Tube



H Ex 3/ 49 2

SPECIMENS FROM 5-INCH STEEL B. L. RIFLE NO. 1.

No. 2530.

Marks, $\frac{5R_1T}{BT_1M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000550	.000100	0.	.....	
5,000	25,000	.000750	.000200	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001100	.000200	.....	.....	
8,000	40,000	.001300	.000200	.....	.....	
8,200	41,000	.001350	.000050			Elastic limit.
8,400	42,000	.001400	.000050	.....	.....	
8,600	43,000	.006000	.004600	.....	.....	
8,800	44,000	.006000	.000900	.....	.....	
9,000	45,000	.008000	.001100	.....	.....	
9,200	46,000	.009000	.001000	.....	.....	
9,400	47,000	.010050	.001050	.....	.....	
9,600	48,000	.011500	.001450	.....	.....	
9,800	49,000	.012250	.000750	.....	.....	
10,000	50,000	.013500	.001250			Tensile strength.
10,400	52,000	.015750	.002250	.....	.....	
10,800	54,000	.019000	.003250	.....	.....	
11,200	56,000	.021250	.002250	.....	.....	
11,600	58,000	.024000	.002750	.....	.....	
12,000	60,000	.027500	.003500	.....	.....	
12,400	62,000	.031000	.003500	.....	.....	
12,800	64,000	.035000	.004000	.....	.....	
13,200	66,000	.039750	.004750	.....	.....	
13,600	68,000	.045000	.005250	.....	.....	
14,000	70,000	.052000	.007000	.....	.....	
14,400	72,000	.0600	.0080	.....	.....	
14,800	74,000	.0700	.0100	.....	.....	
15,200	76,000	.0900	.0200	.....	.....	
15,600	78,000	.1300	.0400	.....	.....	
15,800	79,000	.1800	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	79,000
Elastic limit per square inch of original section	do...	42,000
Elongation per inch after rupture	inch..	0.2950
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.155
Reduction in area after rupture, per centum of original section		51.9
Position of rupture	at middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".30*, ".29*	

No. 2531.

Marks, $\frac{5 R_1 T}{B T_2 M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.	.....	
2,000	10,000	.000350	.000150	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000700	.000150	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001200	.000200	.....	.....	
7,200	36,000	.001300	.000100	.....	.....	
7,400	37,000	.001350	.000050	.....	.....	
7,600	38,000	.001400	.000050	.....	.....	
7,800	39,000	.001450	.000050	.....	.....	
8,000	40,000	.001550	.000100	.....	.....	
8,200	41,000	.001600	.000050	.....	.....	
8,400	42,000	.001650	.000050			Elastic limit.
8,600	43,000	.004000	.002350	.....	.....	
8,800	44,000	.005700	.001700	.....	.....	
9,000	45,000	.006400	.000700	.....	.....	
9,200	46,000	.007400	.001000	.....	.....	
9,400	47,000	.008350	.000950	.....	.....	
9,600	48,000	.009250	.000900	.....	.....	
9,800	49,000	.010500	.001250	.....	.....	
10,000	50,000	.011500	.001000	.....	.....	
10,400	52,000	.014250	.002750	.....	.....	
10,800	54,000	.016500	.002250	.....	.....	
11,200	56,000	.018550	.002050	.....	.....	
11,600	58,000	.021250	.002700	.....	.....	
12,000	60,000	.024250	.003000	.....	.....	
12,400	62,000	.028000	.003750	.....	.....	
12,800	64,000	.031000	.002000	.....	.....	
13,200	66,000	.034000	.003000	.....	.....	
13,600	68,000	.038500	.004500	.....	.....	
14,000	70,000	.044250	.005750	.....	.....	
14,400	72,000	.051000	.006750	.....	.....	
14,800	74,000	.0550	.0040	.....	.....	
15,200	76,000	.0650	.0100	.....	.....	
15,600	78,000	.0900	.0250	.....	.....	
16,000	80,000	.1400	.0500			Tensile strength.
16,010	80,050	.1550	.0150	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	80,050
Elastic limit per square inch of original section.....	do...	42,000
Elongation per inch after rupture.....	inch..	0.2650
Elongation per inch under strain at elastic limit.....	do...	.001650
Reduction in diameter at point of rupture.....	do...	.165
Reduction in area after rupture, per centum of original section.....		54.6
Position of rupture.....	".60 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".15, ".38*	

No. 657.

Marks, $\frac{5 R_1 T}{B T_3 M}$

Length, 4".505.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000267	.000167	0.	.....	
7,500	15,000	.000400	.000133	0.	.....	
10,000	20,000	.000567	.000167	0.	.....	
12,500	25,000	.000767	.000200	0.	.....	
15,000	30,000	.000933	.000166	0.	.....	
17,500	35,000	.001100	.000167	0.	.....	
20,000	40,000	.001233	.000133	.....	.....	
20,500	41,000	.001267	.000034	.....	.....	
21,000	42,000	.001333	.000066	.....	.....	
21,500	43,000	.001367	.000034	.....	.....	
22,000	44,000	.001400	.000033	.....	.....	
22,500	45,000	.001467	.000067			Elastic limit.
23,000	46,000	.004400	.002933	.....	.....	
23,500	47,000	.006700	.002300	.....	.....	
24,000	48,000	.007933	.001233			Ultimate strength.
40,380	80,760	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 45,000
 Compression per inch under stress at elastic limitinch.. 0.001467
 Ultimate strength per square inch of original section.....pounds.. 80,760
 Manner of failure.....triple flexure

H. Ex. 31—34

No. 2532.

Marks, $\frac{5 R_1 T}{M T_1 M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.	.....	
2,000	10,000	.000400	.000200	0.	.....	
3,000	15,000	.000550	.000150	0.	.....	
4,000	20,000	.000650	.000100	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001200	.000200	.....	.....	
8,000	40,000	.001500	.000300	.....	.....	
8,200	41,000	.001550	.000050			Elastic limit.
8,400	42,000	.001600	.000050	.....	.....	
8,600	43,000	.001800	.000200	.....	.....	
8,800	44,000	.002250	.000450	.....	.....	
9,000	45,000	.003150	.000900	.....	.....	
9,200	46,000	.004050	.000900	.....	.....	
9,400	47,000	.005100	.001050	.....	.....	
9,600	48,000	.006250	.001150	.....	.....	
9,800	49,000	.007400	.001150	.....	.....	
10,000	50,000	.008600	.001200	.....	.....	
10,400	52,000	.010400	.001800	.....	.....	
10,800	54,000	.012600	.002200	.....	.....	
11,200	56,000	.015350	.002750	.....	.....	
11,600	58,000	.017250	.001900	.....	.....	
12,000	60,000	.019500	.002250	.....	.....	
12,400	62,000	.021750	.002250	.....	.....	
12,800	64,000	.025000	.003250	.....	.....	
13,200	66,000	.028050	.003050	.....	.....	
13,600	68,000	.031500	.003450	.....	.....	
14,000	70,000	.036050	.004550	.....	.....	
14,400	72,000	.041000	.004950	.....	.....	
14,800	74,000	.046250	.005250	.....	.....	
15,200	76,000	.051750	.005500	.....	.....	
15,600	78,000	.0600	.008250	.....	.....	
16,000	80,000	.0750	.0150	.....	.....	
16,400	82,000	.1000	.0250	.....	.....	
16,610	83,500	.1400	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	83,050
Elastic limit per square inch of original section.....	do...	42,000
Elongation per inch after rupture.....	inch..	0.2050
Elongation per inch under strain at elastic limit.....	do...	.001600
Reduction in diameter at point of rupture.....	do...	.095
Reduction in area after rupture, per centum of original section		34.0
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	granular, 65 per centum; silky, 35 per centum	
Elongation of inch sections	" .14, ".27*	

No. 2533.

Marks, $\frac{5}{M} R_1 T$
 $\frac{M}{T_2} M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000700	.000200	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001000	.000150	.....	.....	
8,000	40,000	.001250	.000250	.....	.....	
8,200	41,000	.001300	.000050			Elastic limit.
8,400	42,000	.001350	.000050	.....	.....	
8,600	43,000	.001600	.000250	.....	.....	
8,800	44,000	.002150	.000550	.....	.....	
9,000	45,000	.003350	.001200	.....	.....	
9,200	46,000	.004000	.000650	.....	.....	
9,400	47,000	.005100	.001100	.....	.....	
9,600	48,000	.006400	.001300	.....	.....	
9,800	49,000	.007250	.000850	.....	.....	
10,000	50,000	.008250	.001000			Tensile strength.
10,400	52,000	.010200	.001950	.....	.....	
10,800	54,000	.012750	.002550	.....	.....	
11,200	56,000	.015000	.002250	.....	.....	
11,600	58,000	.017500	.002500	.....	.....	
12,000	60,000	.020000	.002500	.....	.....	
12,400	62,000	.022500	.002500	.....	.....	
12,800	64,000	.025750	.003250	.....	.....	
13,200	66,000	.028750	.003000	.....	.....	
13,600	68,000	.032800	.004050	.....	.....	
14,000	70,000	.037000	.004200	.....	.....	
14,400	72,000	.041750	.004750	.....	.....	
14,800	74,000	.048000	.006250	.....	.....	
15,200	76,000	.055000	.007000	.....	.....	
15,600	78,000	.0600	.0050	.....	.....	
16,000	80,000	.0800	.0200	.....	.....	
16,400	82,000	.1050	.0250	.....	.....	
16,570	82,850	.1500	.0450	.....	.....	

General summary.

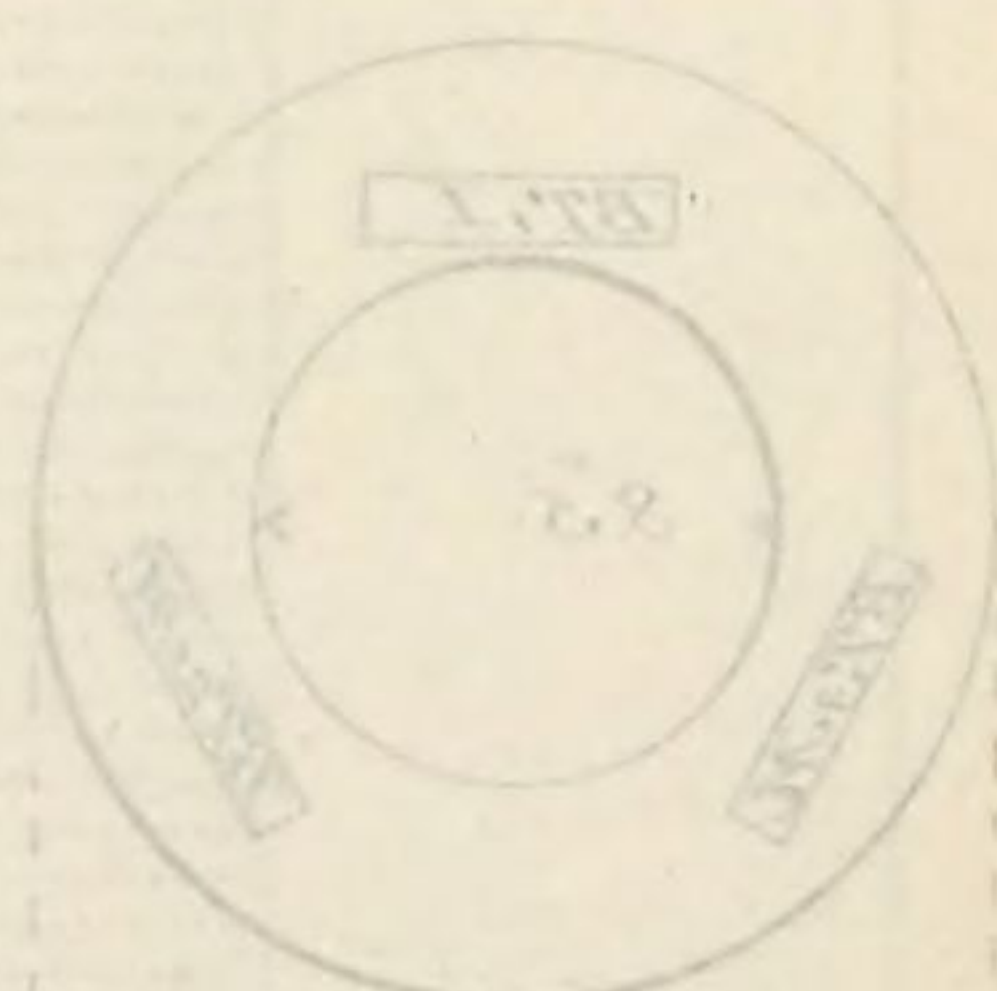
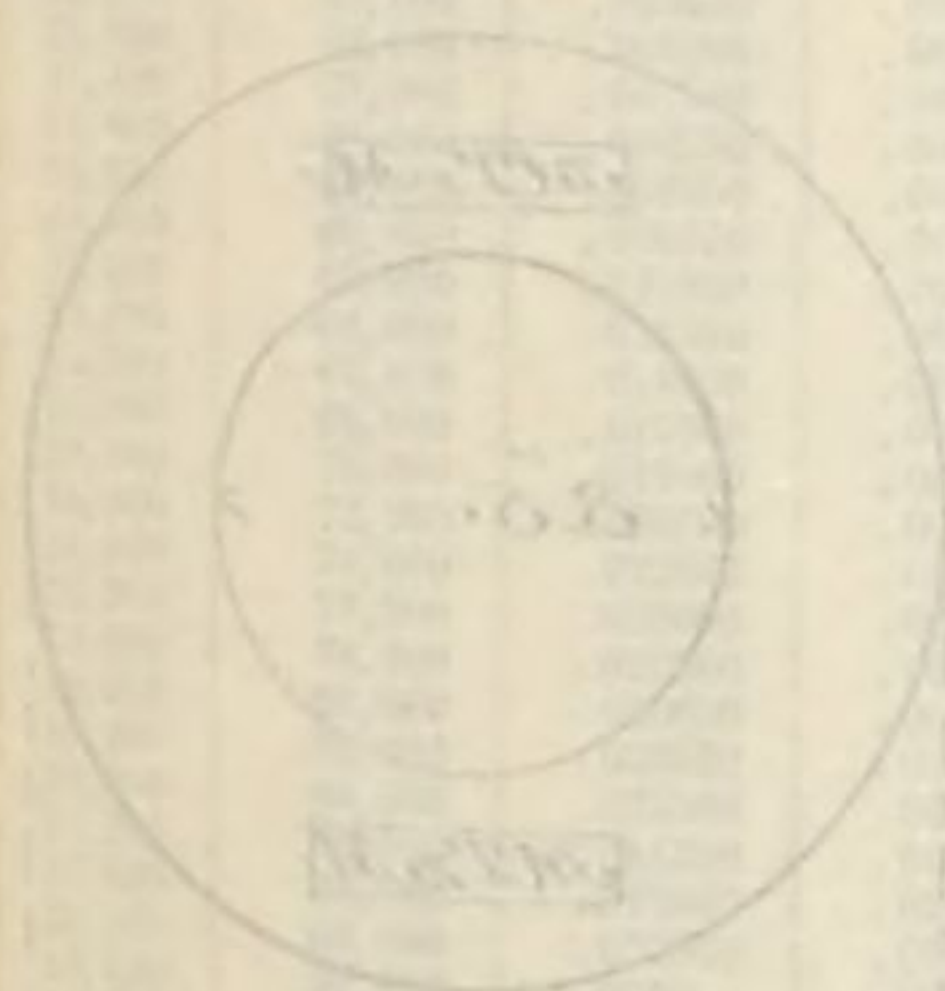
Tensile strength per square inch of original section.....	pounds.	82,850
Elastic limit per square inch of original section.....	do.	42,000
Elongation per inch after rupture.....	inch.	0.2450
Elongation per inch under strain at elastic limit.....	do.	.001350
Reduction in diameter at point of rupture.....	do.	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....	"	.95 from neck
Character of broken surface.....		silky
Elongation of inch sections.....	"	.34*, ".15

No. 251.

Machine, 100.
 Diameter, 1.501.
 Sectional area, 1.5 square inch.

2" Steel B.L. Rifle No. 1

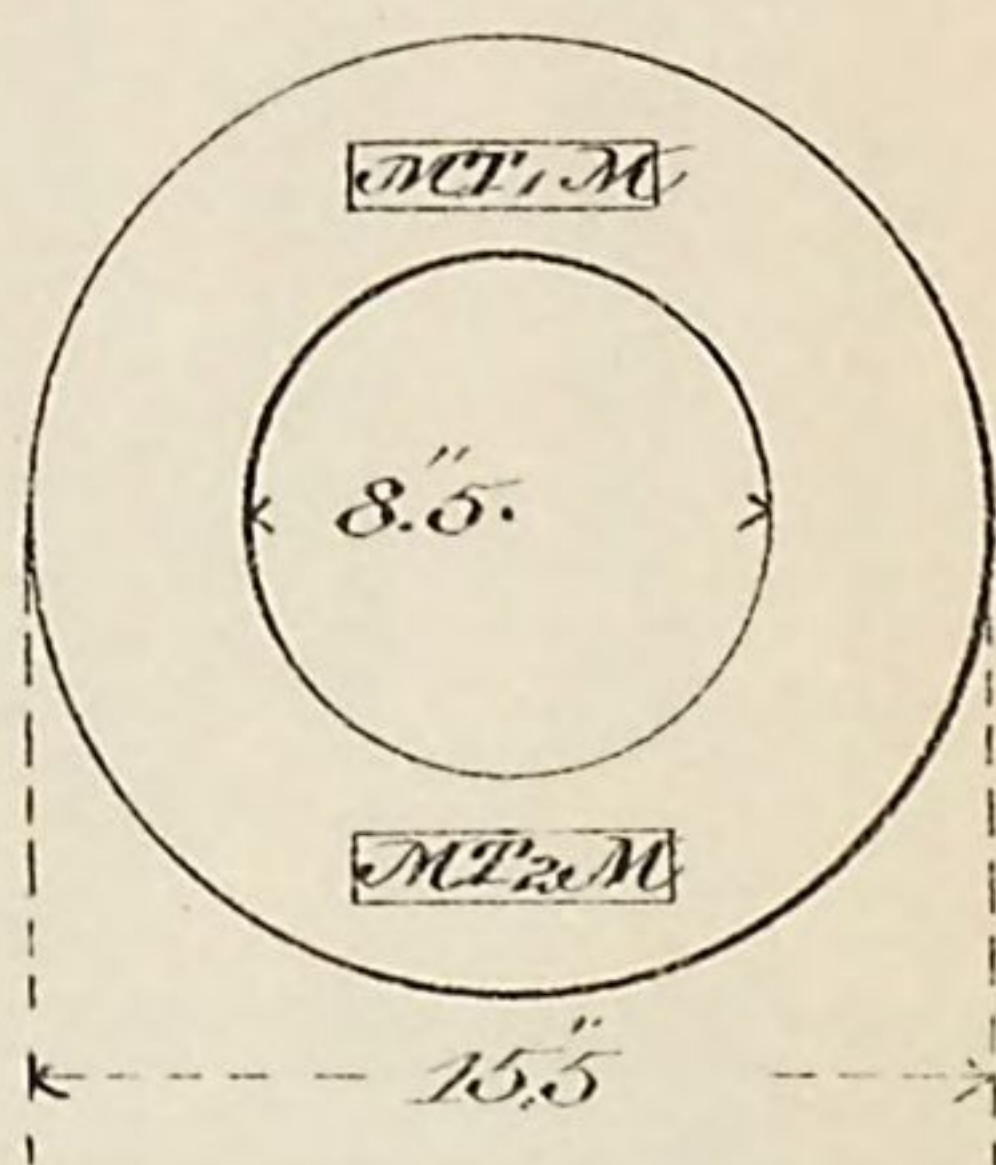
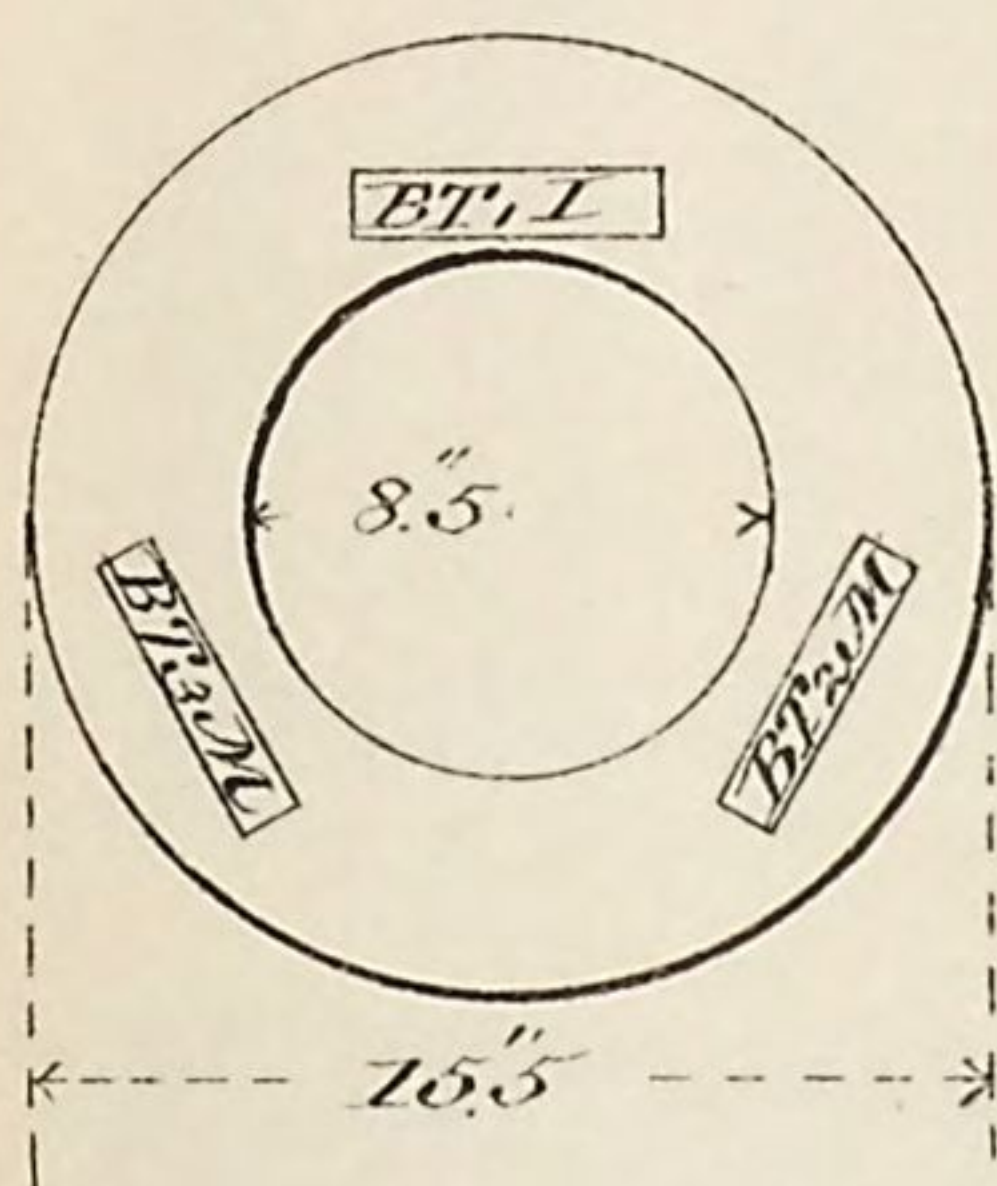
Jackey



H Ex 3 \ 40 2

5" Steel B.L. Rifle No. 1

Jacket



H Ex 3 / 49 2

No. 2551.

Marks, $\begin{smallmatrix} 5R_1J \\ BT_1I \end{smallmatrix}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	-----	
2,000	10,000	.000250	.000150	0.	-----	
3,000	15,000	.000450	.000200	0.	-----	
4,000	20,000	.000650	.000200	0.	-----	
5,000	25,000	.000850	.000200	0.	-----	
6,000	30,000	.001050	.000200	0.	-----	
7,000	35,000	.001200	.000150	-----	-----	
8,000	40,000	.001350	.000150	-----	-----	
9,000	45,000	.001550	.000200	-----	-----	
9,200	46,000	.001600	.000050	-----	-----	
9,400	47,000	.001700	.000100	-----	-----	
9,600	48,000	.001800	.000100	-----	-----	Elastic limit.
9,800	49,000	.002350	.000550	-----	-----	
10,000	50,000	.002850	.000500	-----	-----	
10,200	51,000	.003350	.000500	-----	-----	
10,400	52,000	.004000	.000650	-----	-----	
10,600	53,000	.004450	.000450	-----	-----	
10,800	54,000	.005050	.000600	-----	-----	
11,000	55,000	.005650	.000600	-----	-----	
11,200	56,000	.006600	.000950	-----	-----	
11,400	57,000	.007500	.000900	-----	-----	
11,600	58,000	.008250	.000750	-----	-----	
11,800	59,000	.009050	.000800	-----	-----	
12,000	60,000	.009550	.000500	-----	-----	
12,400	62,000	.011200	.001650	-----	-----	
12,800	64,000	.013300	.002100	-----	-----	
13,200	66,000	.014650	.001350	-----	-----	
13,600	68,000	.017000	.002350	-----	-----	
14,000	70,000	.019000	.002000	-----	-----	
14,400	72,000	.020600	.001600	-----	-----	
14,800	74,000	.022900	.002300	-----	-----	
15,200	76,000	.025000	.002100	-----	-----	
15,600	78,000	.027600	.002600	-----	-----	
16,000	80,000	.030600	.003000	-----	-----	
16,400	82,000	.033550	.002950	-----	-----	
16,800	84,000	.037500	.003950	-----	-----	
17,200	86,000	.041250	.003750	-----	-----	
17,600	88,000	.046000	.004750	-----	-----	
18,000	90,000	.052500	.006500	-----	-----	
18,400	92,000	.0600	.0075	-----	-----	
18,720	93,600	.0650	.0050	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	93,600
Elastic limit per square inch of original section.....	do ..	48,000
Elongation per inch after rupture.....	inch..	0.0650
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do...	.025
Reduction in area after rupture, per centum of original section.....		9.5
Position of rupture.....		".35 from neck
Character of broken surface, granular; line of flaky metal across fractured surface; opened small cracks in the surface of stem.		
Elongation of inch sections.....		".06, ".07*

No. 2552.

Marks, $\begin{smallmatrix} 5 R_1 J \\ B T_2 M \end{smallmatrix}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000500	.000100	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000800	.000150	0.	.....	
7,000	35,000	.001000	.000200	.....	.....	
8,000	40,000	.001150	.000150	.....	.....	
9,000	45,000	.001400	.000250	.....	.....	Elastic limit.
9,200	46,000	.001600	.000200	.....	.....	
9,400	47,000	.003000	.001400	.....	.....	
9,600	48,000	.003500	.000500	.....	.....	
9,800	49,000	.004350	.000850	.....	.....	
10,000	50,000	.005150	.000800	.....	.....	
10,200	51,000	.006000	.000850	.....	.....	
10,400	52,000	.006550	.000550	.....	.....	
10,600	53,000	.007150	.000600	.....	.....	
10,800	54,000	.008250	.001100	.....	.....	
11,000	55,000	.008750	.000500	.....	.....	
11,200	56,000	.009500	.000750	.....	.....	
11,400	57,000	.010250	.000750	.....	.....	
11,600	58,000	.011250	.001000	.....	.....	
11,800	59,000	.012000	.000750	.....	.....	
12,000	60,000	.012800	.000800	.....	.....	
12,400	62,000	.014600	.001800	.....	.....	
12,800	64,000	.016500	.001900	.....	.....	
13,200	66,000	.018400	.001900	.....	.....	
13,600	68,000	.020350	.001950	.....	.....	
14,000	70,000	.022450	.002100	.....	.....	
14,400	72,000	.024850	.002400	.....	.....	
14,800	74,000	.027200	.002350	.....	.....	
15,200	76,000	.030000	.002800	.....	.....	
15,600	78,000	.033500	.003500	.....	.....	
16,000	80,000	.036900	.003400	.....	.....	
16,400	82,000	.040600	.003700	.....	.....	
16,800	84,000	.044900	.004300	.....	.....	
17,200	86,000	.050250	.005350	.....	.....	
17,600	88,000	.0550	.004750	.....	.....	
18,000	90,000	.0650	.0100	.....	.....	
18,400	92,000	.0800	.0150	.....	.....	
18,800	94,000	.0950	.0150	.....	.....	
19,120	95,600	.1450	.0500	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	95,600
Elastic limit per square inch of original section	do...	45,000
Elongation per inch after rupture	inch..	0.2250
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	".85 from neck; oblique	
Character of broken surface	silky	
Elongation of inch sections	".12, ".33*	

No. 659.

Marks, $\frac{5}{B} R_1 J$
 $\frac{3}{T} M$

Length, 4'' .507.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000067	.000067	0.	.....	
5,000	10,000	.000300	.000233	0.	.....	
7,500	15,000	.000500	.000200	0.	.....	
10,000	20,000	.000667	.000167	0.	.....	
12,500	25,000	.000833	.000166	0.	.....	
15,000	30,000	.001000	.000167	0.	.....	
17,500	35,000	.001200	.000200	0.	.....	
20,000	40,000	.001300	.000100	.....	.....	
20,500	41,000	.001333	.000033	.....	.....	
21,000	42,000	.001367	.000034	.....	.....	
21,500	43,000	.001400	.000033	.....	.....	
22,000	44,000	.001400	0.	.....	.....	
22,500	45,000	.001433	.000033			Elastic limit.
23,000	46,000	.001467	.000034	.....	.....	
23,500	47,000	.002633	.001166	.....	.....	
24,000	48,000	.003833	.001200	.....	.....	
24,500	49,000	.004733	.000900	.....	.....	
25,000	50,000	.005000	.000266			Ultimate strength.
45,660	91,320	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 46,000
 Compression per inch under stress at elastic limit.....inch.. 0.001467
 Ultimate strength per square inch of original section.....pounds.. 91,320
 Manner of failure.....triple flexure

No. 2553.

Marks, $\frac{5}{M} \frac{R_1}{T_1} \frac{J}{M}$

Diameter, ".506.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000550	.000200	0.	.....	
5,000	25,000	.000700	.000150	0.	.....	
6,000	30,000	.000850	.000150	0.	.....	
7,000	35,000	.001050	.000200	.....	.....	
8,000	40,000	.001250	.000200	.....	.....	
9,000	45,000	.001400	.000150	.....	.....	
9,200	46,000	.001400	0.	.....	.....	
9,400	47,000	.001450	.000050	.....	.....	
9,600	48,000	.001500	.000050	.....	.....	
9,800	49,000	.001550	.000050	.....	.....	
10,000	50,000	.001550	0.	.....	.....	
10,200	51,000	.001600	.000050	.....	.....	
10,400	52,000	.001600	0.	.....	.....	
10,600	53,000	.001650	.000050	.....	.....	
10,800	54,000	.001700	.000050	.....	.....	
11,000	55,000	.001750	.000050			Elastic limit.
11,200	56,000	.002100	.000350	.....	.....	
11,400	57,000	.002900	.000800	.....	.....	
11,600	58,000	.003500	.000600	.....	.....	
11,800	59,000	.004100	.000600	.....	.....	
12,000	60,000	.005000	.000900	.....	.....	
12,400	62,000	.006100	.001100	.....	.....	
12,800	64,000	.007600	.001500	.....	.....	
13,200	66,000	.009100	.001500	.....	.....	
13,600	68,000	.010600	.001500	.....	.....	
14,000	70,000	.012100	.001500	.....	.....	
14,400	72,000	.013750	.001650	.....	.....	
14,800	74,000	.015600	.001850	.....	.....	
15,200	76,000	.017200	.001600	.....	.....	
15,600	78,000	.019000	.001800	.....	.....	
16,000	80,000	.020600	.001600	.....	.....	
16,400	82,000	.023000	.002400	.....	.....	
16,800	84,000	.025000	.002000	.....	.....	
17,200	86,000	.027550	.002550	.....	.....	
17,600	88,000	.030250	.002700	.....	.....	
18,000	90,000	.032500	.002250			Tensile strength.
18,400	92,000	.035500	.003000	.....	.....	
18,800	94,000	.039000	.003500	.....	.....	
19,200	96,000	.043000	.004000	.....	.....	
19,600	98,000	.047500	.004500	.....	.....	
20,000	100,000	.0550	.0075	.....	.....	
20,400	102,000	.0600	.0050	.....	.....	
20,800	104,000	.0700	.0100	.....	.....	
21,200	106,000	.1000	.0300	.....	.....	
21,310	106,550	.1300	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section.....pounds.. 106,550
 Elastic limit per square inch of original section.....do... 55,000
 Elongation per inch after rupture.....inch.. 0.1850
 Elongation per inch under strain at elastic limit.....do... .001750
 Reduction in diameter at point of rupture.....do... .076
 Reduction in area after rupture, per centum of original section.....27.4
 Position of rupture.....".55 from neck
 Character of broken surface.....granular; radiating from a dull spot at the circumference
 Elongation of inch sections.....".24*, ".13

No. 2554.

Marks, $\frac{5}{M} R_1 J$
 $\frac{M}{T_2} M$

Diameter, ".505.

Sectional area, .20 square inch.

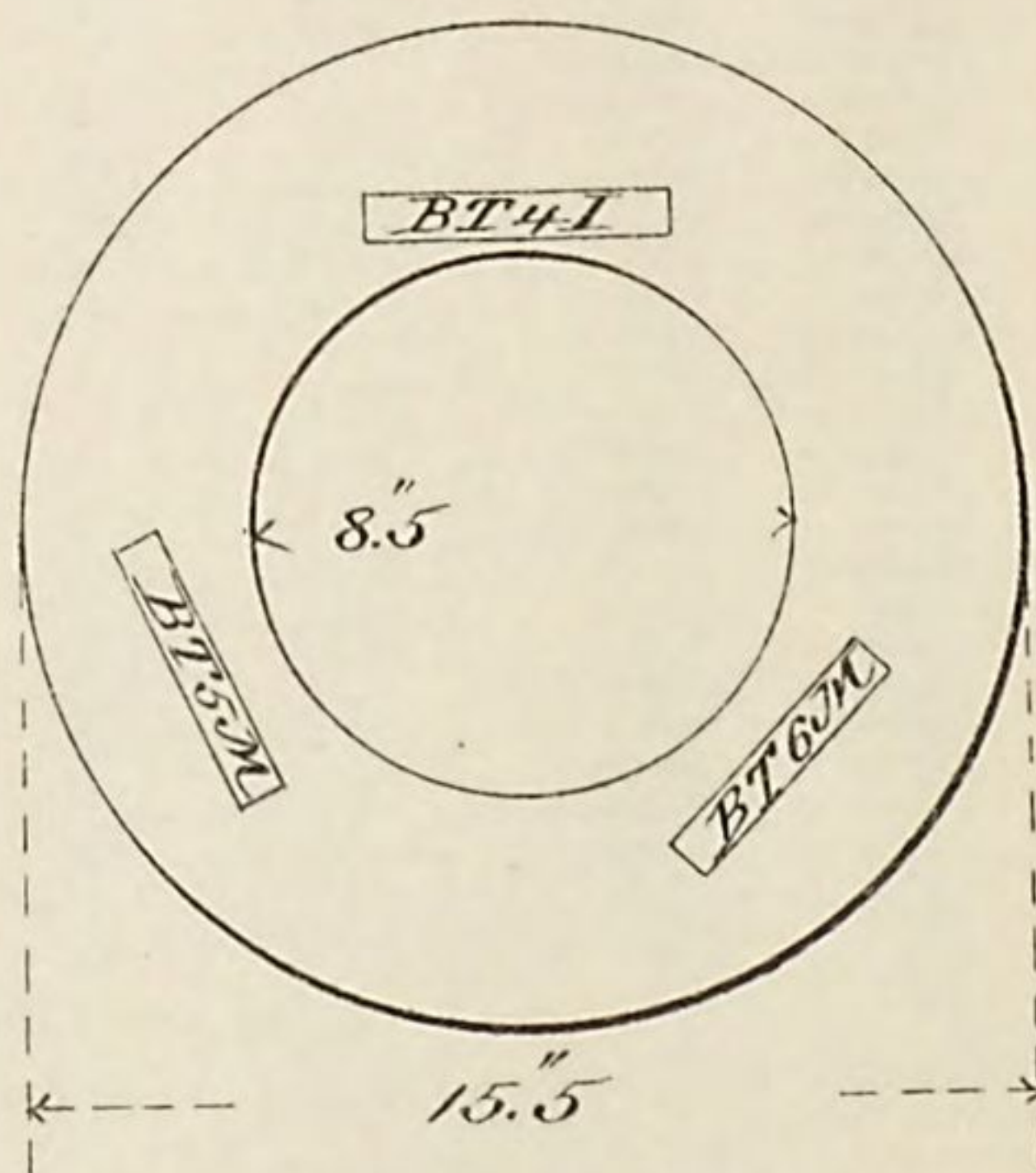
Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000200	.000100	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000500	.000150	0.	.....	
5,000	25,000	.000600	.000100	0.	.....	
6,000	30,000	.000800	.000200	0.	.....	
7,000	35,000	.000950	.000150	.....	.....	
8,000	40,000	.001150	.000200	.....	.....	
9,000	45,000	.001350	.000200	.....	.....	
9,200	46,000	.001400	.000050	.....	.....	
9,400	47,000	.001400	0.	.....	.....	
9,600	48,000	.001450	.000050	.....	.....	
9,800	49,000	.001450	0.	.....	.....	
10,000	50,000	.001500	.000050	.....	.....	
10,200	51,000	.001500	0.	.....	.....	
10,400	52,000	.001550	.000050	.....	.....	
10,600	53,000	.001650	.000100	.....	.....	
10,800	54,000	.001700	.000050	.....	.....	
11,000	55,000	.001750	.000050	.....	.....	
11,200	56,000	.001800	.000050	.....	.....	Elastic limit.
11,400	57,000	.001950	.000150	.....	.....	
11,600	58,000	.002750	.000800	.....	.....	
11,800	59,000	.003250	.000500	.....	.....	
12,000	60,000	.003750	.000500	.....	.....	
12,400	62,000	.005300	.001550	.....	.....	
12,800	64,000	.007000	.001700	.....	.....	
13,200	66,000	.008550	.001550	.....	.....	
13,600	68,000	.009900	.001350	.....	.....	
14,000	70,000	.011550	.001650	.....	.....	
14,400	72,000	.013250	.001700	.....	.....	
14,800	74,000	.014900	.001650	.....	.....	
15,200	76,000	.016550	.001650	.....	.....	
15,600	78,000	.018250	.001700	.....	.....	
16,000	80,000	.020100	.001850	.....	.....	
16,400	82,000	.022750	.002650	.....	.....	
16,800	84,000	.024650	.001900	.....	.....	
17,200	86,000	.026800	.002150	.....	.....	
17,600	88,000	.030000	.003200	.....	.....	
18,000	90,000	.033250	.003250	.....	.....	
18,400	92,000	.037000	.003750	.....	.....	
18,800	94,000	.040000	.003000	.....	.....	
19,200	96,000	.044750	.004750	.....	.....	
19,600	98,000	.049000	.004250	.....	.....	
20,000	100,000	.054750	.005750	.....	.....	
20,400	102,000	.0650	.010250	.....	.....	
20,800	104,000	.0850	.0200	.....	.....	
21,140	105,700	.1200	.0350	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	105,700
Elastic limit per square inch of original section.....	do...	56,000
Elongation per inch after rupture.....	inch .	0.1600
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do...	.075
Reduction in area after rupture, per centum of original section.....		27.4
Position of rupture.....		$\frac{3}{4}$ inch from neck
Character of broken surface.....	granular; dull spot at circumference	

Jacket 5" Steel B. L. Rifle No. 1

Additional Specimens



H Ex 3/ 49 2

No. 2708.

Marks, $\frac{5}{B} R_1 J$

Diameter, ".506.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Persquare inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000700	.000150	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001050	.000200	.000050	.000050	
7,000	35,000	.001200	.000150	.....	.....	
8,000	40,000	.001350	.000150	.....	.....	
8,200	41,000	.001400	.000050	.....	.....	
8,400	42,000	.001450	.000050	.....	.....	
8,600	43,000	.001550	.000100	.....	.....	
8,800	44,000	.001600	.000050	.....	.....	
9,000	45,000	.001650	.000050	.....	.....	
9,200	46,000	.001750	.000100	.....	.....	Elastic limit.
9,400	47,000	.002050	.000300	.....	.....	
9,600	48,000	.002300	.000250	.....	.....	
9,800	49,000	.002650	.000350	.....	.....	
10,000	50,000	.003200	.000550	.....	.....	
10,200	51,000	.003550	.000350	.....	.....	
10,400	52,000	.004050	.000500	.....	.....	
10,600	53,000	.004750	.000700	.....	.....	
10,800	54,000	.005250	.000500	.....	.....	
11,000	55,000	.006050	.000800	.....	.....	
11,200	56,000	.006600	.000550	.....	.....	
11,600	58,000	.008050	.001450	.....	.....	
12,000	60,000	.010250	.002200	.....	.....	
12,400	62,000	.011500	.001250	.....	.....	
12,800	64,000	.013250	.001750	.....	.....	
13,200	66,000	.014800	.001550	.....	.....	
13,600	68,000	.016700	.001900	.....	.....	
14,000	70,000	.018750	.002050	.....	.....	
14,400	72,000	.021050	.002300	.....	.....	
14,800	74,000	.023500	.002450	.....	.....	
15,200	76,000	.026000	.002500	.....	.....	
15,600	78,000	.028750	.002750	.....	.....	
16,000	80,000	.032000	.003250	.....	.....	
16,400	82,000	.035000	.003000	.....	.....	
16,800	84,000	.038050	.003050	.....	.....	
17,200	86,000	.042400	.004350	.....	.....	
17,600	88,000	.047500	.005100	.....	.....	
18,000	90,000	.0525	.0050	.....	.....	
18,400	92,000	.0650	.0125	.....	.....	
18,800	94,000	.....	.....	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	94,000
Elastic limit per square inch of original section.....	do...	46,000
Elongation per inch after rupture.....	inch..	0.0800
Elongation per inch under strain at elastic limit.....	do...	.001750
Reduction in diameter at point of rupture.....	do...	.026
Reduction in area after rupture, per centum of original section.....		9.5
Position of rupture.....	".23 from neck	
Character of broken surface.....	granular, flaky streaks; opened cracks in surface of stem	
Elongation of inch sections.....	".06, ".10*	

No. 2709.

Marks, $\frac{5}{B} R_1 J$
 $\frac{B}{T_5} M$

Diameter, ".506.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000300	.000200	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001300	.000200	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001350	.000200	0.	.....	
8,200	41,000	.001400	.000050			Elastic limit.
8,400	42,000	.001450	.000050	.....	.....	
8,600	43,000	.001500	.000050	.....	.....	
8,800	44,000	.001550	.000050	.....	.....	
9,000	45,000	.001600	.000050	.....	.....	
9,200	46,000	.001650	.000050	.....	.....	
9,400	47,000	.001900	.000250	.....	.....	
9,600	48,000	.004350	.002450	.....	.....	
9,800	49,000	.005000	.000650	.....	.....	
10,000	50,000	.005600	.000600	.....	.....	
10,400	52,000	.007150	.001550	.....	.....	
10,800	54,000	.008750	.001600	.....	.....	
11,200	56,000	.010250	.001500	.....	.....	
11,600	58,000	.011900	.001650	.....	.....	
12,000	60,000	.013550	.001650	.....	.....	
12,400	62,000	.015350	.001800			Tensile strength.
12,800	64,000	.017250	.001900	.....	.....	
13,200	66,000	.019750	.002500	.....	.....	
13,600	68,000	.022000	.002250	.....	.....	
14,000	70,000	.024000	.002000	.....	.....	
14,400	72,000	.026100	.002100	.....	.....	
14,800	74,000	.028700	.002600	.....	.....	
15,200	76,000	.032000	.003300	.....	.....	
15,600	78,000	.034550	.002550	.....	.....	
16,000	80,000	.038500	.003950	.....	.....	
16,400	82,000	.042250	.003750	.....	.....	
16,800	84,000	.0450	.002750	.....	.....	
17,200	86,000	.0500	.0050	.....	.....	
17,600	88,000	.0600	.0100	.....	.....	
18,000	90,000	.0650	.0050	.....	.....	
18,400	92,000	.0800	.0150	.....	.....	
18,800	94,000	.1000	.0200	.....	.....	
18,950	94,750	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	94,750
Elastic limit per square inch of original section	do...	46,000
Elongation per inch after rupture	inch..	0.1450
Elongation per inch under strain at elastic limit	do...	.001650
Reduction in diameter at point of rupture	do...	.045
Reduction in area after rupture, per centum of original section		16.9
Position of rupture	".60 from neck	
Character of broken surface, granular; dull flaky spot at the circumference; opened cracks in surface of stem.		
Elongation of inch sections	".14, ".15*	

No. 2710.

Marks, ⁵R₁ J
_B T₆ M

Diameter, ".506.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000650	.000200	0.	.....	
5,000	25,000	.000850	.000200	0.	.....	
6,000	30,000	.001050	.000200	0.	.....	
7,000	35,000	.001200	.000150	0.	.....	
8,000	40,000	.001350	.000150	0.	.....	
8,200	41,000	.001400	.000050	.....	.....	
8,400	42,000	.001450	.000050	.....	.....	
8,600	43,000	.001500	.000050	.....	.....	
8,800	44,000	.001550	.000050	.....	.....	
9,000	45,000	.001550	0	.....	.....	
9,200	46,000	.001750	.000200			Elastic limit.
9,400	47,000	.002900	.001150	.....	.....	
9,600	48,000	.004000	.001100	.....	.....	
9,800	49,000	.004700	.000700	.....	.....	
10,000	50,000	.005150	.000450	.....	.....	
10,400	52,000	.006650	.001500	.....	.....	
10,800	54,000	.008000	.001350	.....	.....	
11,200	56,000	.009750	.001750	.....	.....	
11,600	58,000	.011550	.001800	.....	.....	
12,000	60,000	.012900	.001350	.....	.....	
12,400	62,000	.014800	.001900	.....	.....	
12,800	64,000	.016600	.001800	.....	.....	
13,200	66,000	.018500	.001900	.....	.....	
13,600	68,000	.020500	.002000	.....	.....	
14,000	70,000	.022650	.002150	.....	.....	
14,400	72,000	.025050	.002400	.....	.....	
14,800	74,000	.027500	.002450	.....	.....	
15,200	76,000	.030350	.002850	.....	.....	
15,600	78,000	.033550	.003200	.....	.....	
16,000	80,000	.036600	.003050	.....	.....	
16,400	82,000	.040600	.004000	.....	.....	
16,800	84,000	.044800	.004200	.....	.....	
17,200	86,000	.0500	.0052	.....	.....	
17,600	88,000	.0550	.0050	.....	.....	
18,000	90,000	.0650	.0100	.....	.....	
18,400	92,000	.0750	.0100	.....	.....	
18,800	94,000	.0950	.0200	.....	.....	
19,080	95,400	.1450	.0500			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	95,400
Elastic limit per square inch of original section.....	do...	46,000
Elongation per inch after rupture.....	inch..	0.2250
Elongation per inch under strain at elastic limit.....	do...	.001750
Reduction in diameter at point of rupture.....	do...	.135
Reduction in area after rupture, per centum of original section.....		46.2
Position of rupture.....	".75 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".11, ".34*	

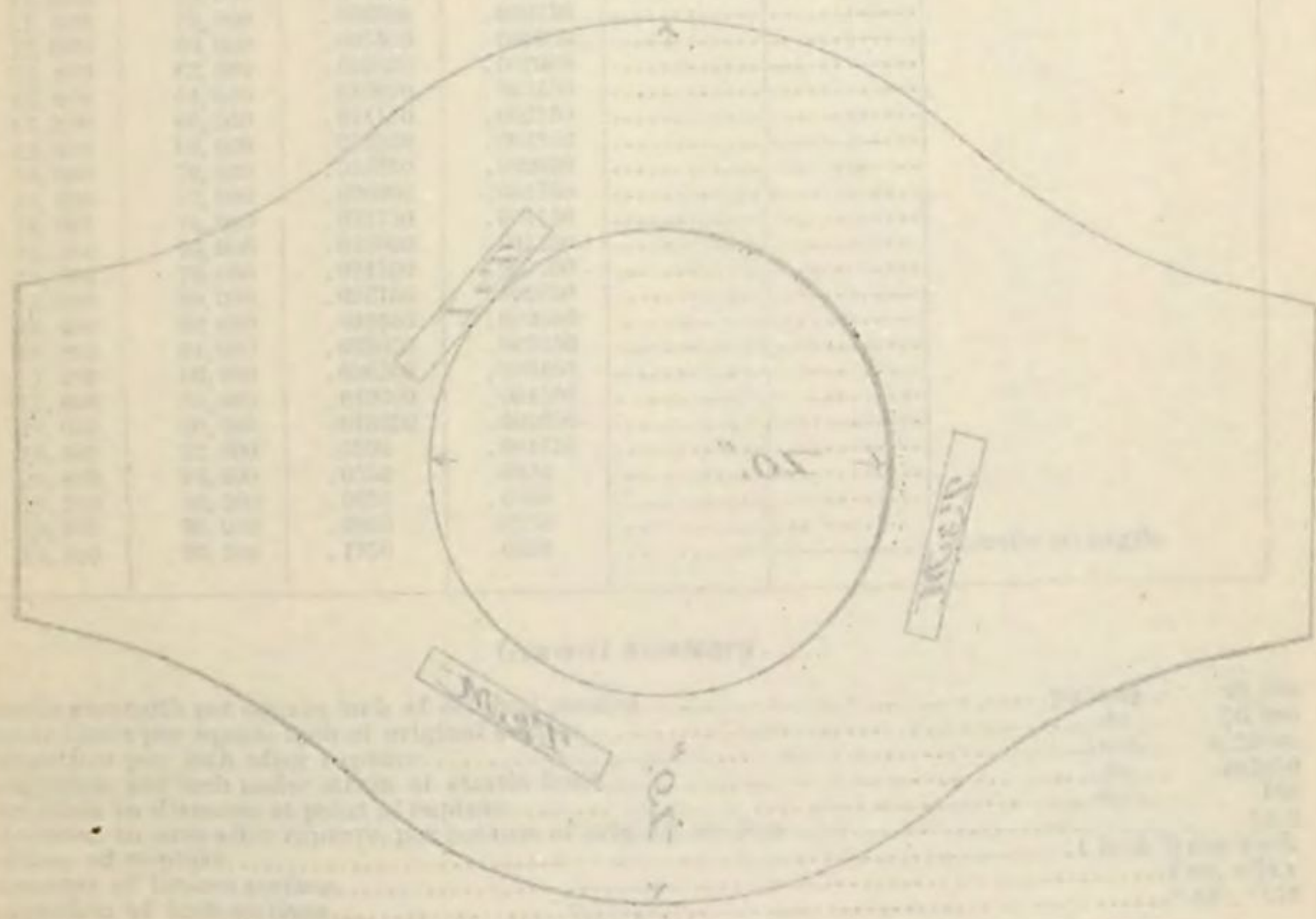
No. 2542.

Marka, S.R. T. II

Diameter, .505.

Sectional area, .20 square inch.

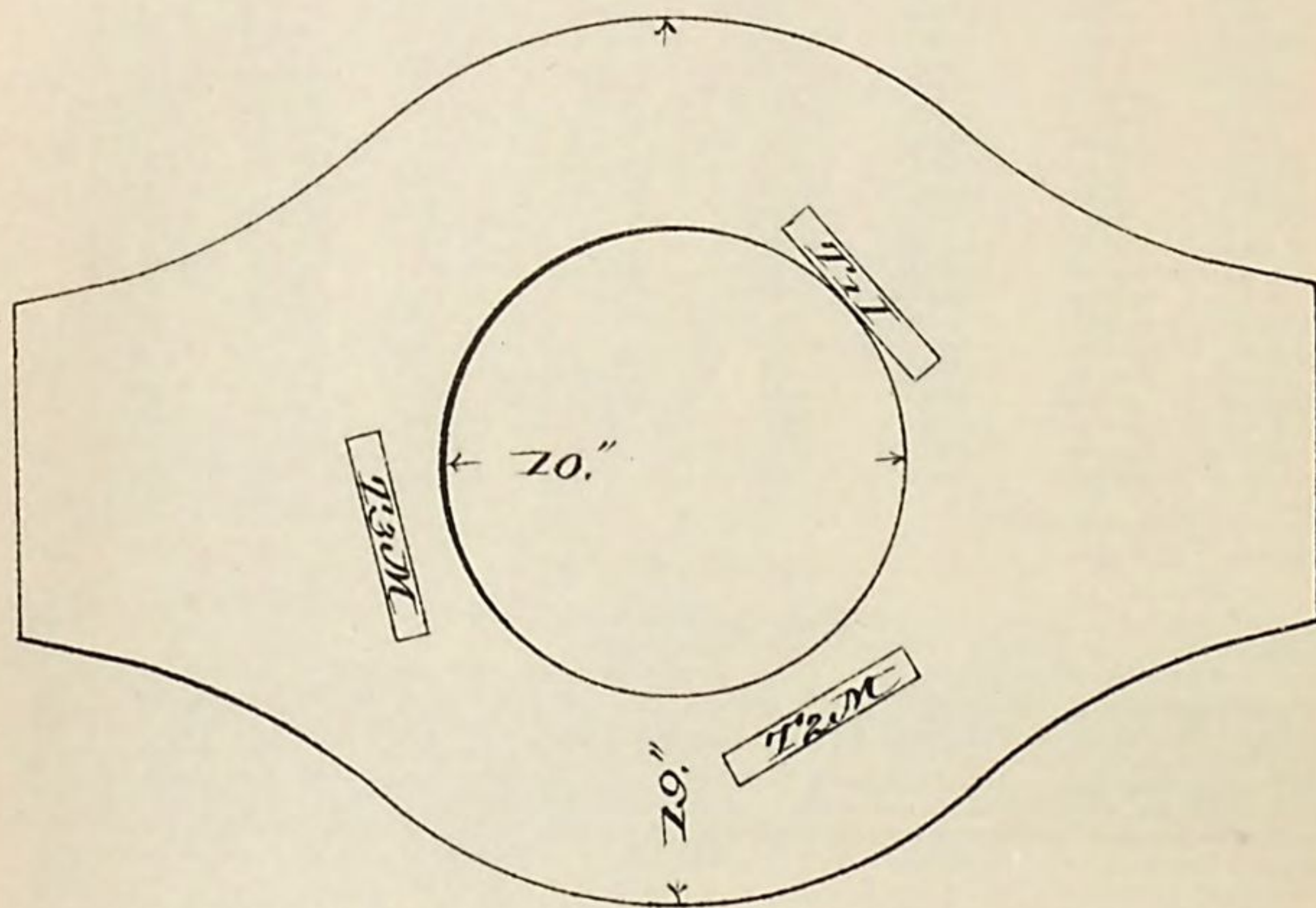
Span in inches.	Permanent deflection in inches.	Resilience in inch-pounds.	Modulus of elasticity in pounds per square inch.	Remarks.
1	0.001	1.0	29,000,000	
2	0.002	4.0	29,000,000	
3	0.003	9.0	29,000,000	
4	0.004	16.0	29,000,000	
5	0.005	25.0	29,000,000	
6	0.006	36.0	29,000,000	
7	0.007	49.0	29,000,000	
8	0.008	64.0	29,000,000	
9	0.009	81.0	29,000,000	
10	0.010	100.0	29,000,000	
11	0.011	121.0	29,000,000	
12	0.012	144.0	29,000,000	
13	0.013	169.0	29,000,000	
14	0.014	196.0	29,000,000	
15	0.015	225.0	29,000,000	
16	0.016	256.0	29,000,000	
17	0.017	289.0	29,000,000	
18	0.018	324.0	29,000,000	
19	0.019	361.0	29,000,000	
20	0.020	400.0	29,000,000	
21	0.021	441.0	29,000,000	
22	0.022	484.0	29,000,000	
23	0.023	529.0	29,000,000	
24	0.024	576.0	29,000,000	
25	0.025	625.0	29,000,000	
26	0.026	676.0	29,000,000	
27	0.027	729.0	29,000,000	
28	0.028	784.0	29,000,000	
29	0.029	841.0	29,000,000	
30	0.030	900.0	29,000,000	
31	0.031	961.0	29,000,000	
32	0.032	1024.0	29,000,000	
33	0.033	1089.0	29,000,000	
34	0.034	1156.0	29,000,000	
35	0.035	1225.0	29,000,000	
36	0.036	1296.0	29,000,000	
37	0.037	1369.0	29,000,000	
38	0.038	1444.0	29,000,000	
39	0.039	1521.0	29,000,000	
40	0.040	1600.0	29,000,000	
41	0.041	1681.0	29,000,000	
42	0.042	1764.0	29,000,000	
43	0.043	1849.0	29,000,000	
44	0.044	1936.0	29,000,000	
45	0.045	2025.0	29,000,000	
46	0.046	2116.0	29,000,000	
47	0.047	2209.0	29,000,000	
48	0.048	2304.0	29,000,000	
49	0.049	2401.0	29,000,000	
50	0.050	2500.0	29,000,000	



H. Ex. 31 40 2

5" Steel B. L. Rifle No. 1

Trunnion Hoop



No. 2542.

Marks, $\frac{5 R_1 T H}{T_1 I}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000250	.000100	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000600	.000200	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000950	.000200	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001400	.000150	.....	.....	
9,200	46,000	.001450	.000050	.....	.....	
9,400	47,000	.001500	.000050	.....	.....	
9,600	48,000	.001500	0.	.....	.....	
9,800	49,000	.001550	.000050	.....	.....	
10,000	50,000	.001600	.000050	.....	.....	
10,200	51,000	.001600	0.	.....	.....	
10,400	52,000	.001650	.000050	.....	.....	
10,600	53,000	.001700	.000050	.....	.....	
10,800	54,000	.001750	.000050	.....	.....	
11,000	55,000	.001750	0.			Elastic limit.
11,200	56,000	.001850	.000100	.....	.....	
11,400	57,000	.005250	.003400	.....	.....	
11,600	58,000	.005850	.000600	.....	.....	
11,800	59,000	.006600	.000750	.....	.....	
12,000	60,000	.007550	.000950	.....	.....	
12,400	62,000	.009550	.002000	.....	.....	
12,800	64,000	.012000	.002450	.....	.....	
13,200	66,000	.014150	.002150	.....	.....	
13,600	68,000	.016250	.002100	.....	.....	
14,000	70,000	.018250	.002000	.....	.....	
14,400	72,000	.020000	.001750	.....	.....	
14,800	74,000	.021750	.001750	.....	.....	
15,200	76,000	.023000	.001250	.....	.....	
15,600	78,000	.024100	.001100	.....	.....	
16,000	80,000	.026750	.002650	.....	.....	
16,400	82,000	.030600	.003850	.....	.....	
16,800	84,000	.033050	.002450	.....	.....	
17,200	86,000	.036500	.003450	.....	.....	
17,600	88,000	.040600	.004100	.....	.....	
18,000	90,000	.045250	.004650			Tensile strength.
18,400	92,000	.0500	.004750	.....	.....	
18,800	94,000	.0550	.0050	.....	.....	
19,200	96,000	.0650	.0100	.....	.....	
19,600	98,000	.0900	.0250	.....	.....	
19,900	99,500	.1350	.0450	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	99,500
Elastic limit per square inch of original section.....	do...	56,000
Elongation per inch after rupture.....	inch..	0.25000
Elongation per inch under strain at elastic limit.....	do...	.001850
Reduction in diameter at point of rupture.....	do...	.155
Reduction in area after rupture, per centum of original section.....	.....	51.9
Position of rupture.....	1 inch from neck	
Character of broken surface.....	fine, silky	
Elongation of inch sections.....	".34*, ".16	

No. 2543.

Marks, ^{5 R₁ T H}
_{T₂ M}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000350	.000250	0.	.....	
3,000	15,000	.000600	.000250	0.	.....	
4,000	20,000	.000700	.000100	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.000950	.000100	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001300	.000200	0.	.....	
9,000	45,000	.001450	.000150	.....	.....	
10,000	50,000	.001650	.000200			Elastic limit.
10,200	51,000	.001700	.000050	.....	.....	
10,400	52,000	.001750	.000050	.....	.....	
10,600	53,000	.001750	0.	.....	.....	
10,800	54,000	.001800	.000050	.....	.....	
11,000	55,000	.001900	.000100	.....	.....	
11,200	56,000	.005400	.003500	.....	.....	
11,400	57,000	.006100	.000700	.....	.....	
11,600	58,000	.007050	.000950	.....	.....	
11,800	59,000	.007600	.000550	.....	.....	
12,000	60,000	.008550	.000950	.....	.....	
12,400	62,000	.010100	.001550	.....	.....	
12,800	64,000	.011850	.001750	.....	.....	
13,200	66,000	.013500	.001650	.....	.....	
13,600	68,000	.015500	.002000	.....	.....	
14,000	70,000	.017450	.001950	.....	.....	
14,400	72,000	.019500	.002050	.....	.....	
14,800	74,000	.021450	.001950	.....	.....	
15,200	76,000	.023550	.002100	.....	.....	
15,600	78,000	.026100	.002550	.....	.....	
16,000	80,000	.029000	.002900	.....	.....	
16,400	82,000	.032000	.003000	.....	.....	
16,800	84,000	.035150	.003150	.....	.....	
17,200	86,000	.038750	.003600	.....	.....	
17,600	88,000	.044550	.005850	.....	.....	
18,000	90,000	.0500	.005450	.....	.....	
18,400	92,000	.0550	.0050	.....	.....	
18,800	94,000	.0600	.0050	.....	.....	
19,200	96,000	.0750	.0150	.....	.....	
19,600	98,000	.1000	.0250	.....	.....	
19,820	99,100	.1400	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....pounds.. 99,100
 Elastic limit per square inch of original sectiondo... 55,000
 Elongation per inch after rupture.....inch.. 0.2500
 Elongation per inch under strain at elastic limit.....3do... .001900
 Reduction in diameter at point of rupture.....do... .155
 Reduction in area after rupture, per centum of original section.....51.9
 Position of rupture.....1 inch from neck
 Character of broken surfacefine, silky
 Elongation of inch sections.....".33*, ".17

No. 2544.

Marks, $\frac{5 R_1 T H}{T_3 M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch,	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000600	.000100	0.	.....	
5,000	25,000	.000700	.000100	0.	.....	
6,000	30,000	.000900	.000200	0.	.....	
7,000	35,000	.001050	.000150	0.	.....	
8,000	40,000	.001250	.000200	0.	.....	
9,000	45,000	.001400	.000150	.....	.....	
10,000	50,000	.001550	.000150	.....	.....	
10,200	51,000	.001550	0.	.....	.....	
10,400	52,000	.001600	.000050	.....	.....	
10,600	53,000	.001650	.000050	.....	.....	
10,800	54,000	.001650	0.	.....	.....	
11,000	55,000	.001700	.000050	.....	.....	
11,200	56,000	.001750	.000050	.....	.....	Elastic limit.
11,400	57,000	.001950	.000200	.....	.....	
11,600	58,000	.004100	.002150	.....	.....	
11,800	59,000	.005100	.001000	.....	.....	
12,000	60,000	.006950	.000950	.....	.....	
12,400	62,000	.008000	.001950	.....	.....	
12,800	64,000	.009550	.001550	.....	.....	
13,200	66,000	.011200	.001650	.....	.....	
13,600	68,000	.013050	.001850	.....	.....	
14,000	70,000	.015000	.001950	.....	.....	
14,400	72,000	.017000	.002000	.....	.....	
14,800	74,000	.019000	.002000	.....	.....	
15,200	76,000	.020850	.001850	.....	.....	
15,600	78,000	.023100	.002250	.....	.....	
16,000	80,000	.025600	.002500	.....	.....	
16,400	82,000	.028250	.002650	.....	.....	
16,800	84,000	.031250	.003000	.....	.....	
17,200	86,000	.034150	.002900	.....	.....	
17,600	88,000	.038500	.004350	.....	.....	
18,000	90,000	.043100	.004600	.....	.....	
18,400	92,000	.048750	.005650	.....	.....	
18,800	94,000	.0550	.006250	.....	.....	
19,200	96,000	.0600	.0050	.....	.....	
19,600	98,000	.0750	.0150	.....	.....	
20,000	100,000	{ .1050 .1250 }	{ .0300 .0200 }	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	100,000
Elastic limit per square inch of original section.....	do...	56,000
Elongation per inch after rupture.....	inch..	0.2250
Elongation per inch under strain at elastic limit.....	do...	.001750
Reduction in diameter at point of rupture.....	do...	.015
Reduction in area after rupture, per centum of original section.....		40.3
Position of rupture.....		1".1 from neck
Character of broken surface.....		silky; interspersed with granulation
Elongation of inch sections.....		".24*, ".21

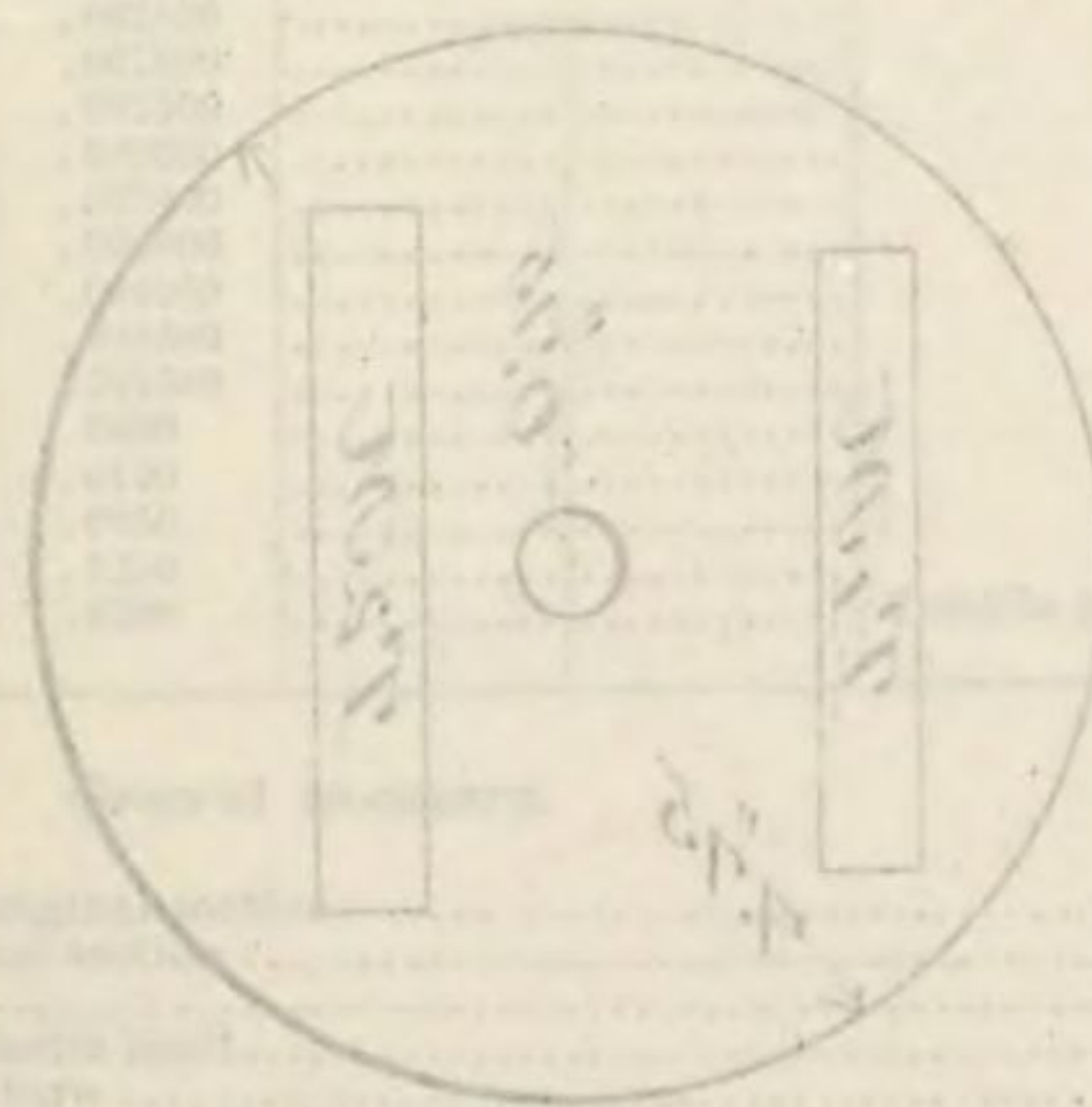
No. 9529.

Marked, 18, 20

Temperature, 75.5

Sectional area, 20 square inch.

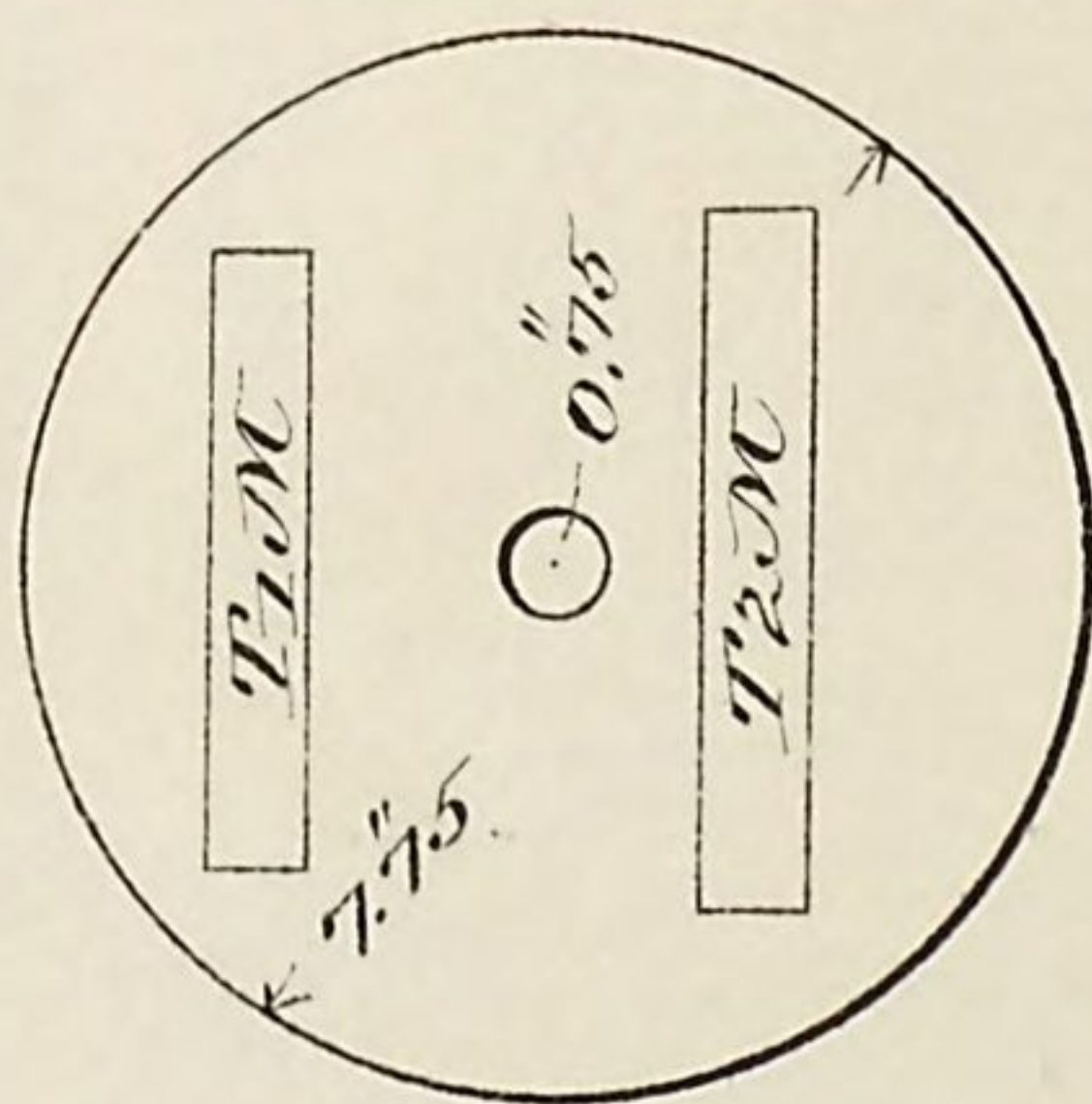
Applied loads.	Elongation per inch.	Reduction of area per inch.	Permanental elongation.	Residual permanent elongation.	Remarks.
Total.	Per square inch.	Total.	Total.	Total.	
100	1.000	0.000	0.000	0.000	
200	2.000	0.000	0.000	0.000	
300	3.000	0.000	0.000	0.000	
400	4.000	0.000	0.000	0.000	
500	5.000	0.000	0.000	0.000	
600	6.000	0.000	0.000	0.000	
700	7.000	0.000	0.000	0.000	
800	8.000	0.000	0.000	0.000	
900	9.000	0.000	0.000	0.000	
1000	10.000	0.000	0.000	0.000	
1100	11.000	0.000	0.000	0.000	
1200	12.000	0.000	0.000	0.000	
1300	13.000	0.000	0.000	0.000	
1400	14.000	0.000	0.000	0.000	
1500	15.000	0.000	0.000	0.000	
1600	16.000	0.000	0.000	0.000	
1700	17.000	0.000	0.000	0.000	
1800	18.000	0.000	0.000	0.000	
1900	19.000	0.000	0.000	0.000	
2000	20.000	0.000	0.000	0.000	
2100	21.000	0.000	0.000	0.000	
2200	22.000	0.000	0.000	0.000	
2300	23.000	0.000	0.000	0.000	
2400	24.000	0.000	0.000	0.000	
2500	25.000	0.000	0.000	0.000	
2600	26.000	0.000	0.000	0.000	
2700	27.000	0.000	0.000	0.000	
2800	28.000	0.000	0.000	0.000	
2900	29.000	0.000	0.000	0.000	
3000	30.000	0.000	0.000	0.000	
3100	31.000	0.000	0.000	0.000	
3200	32.000	0.000	0.000	0.000	
3300	33.000	0.000	0.000	0.000	
3400	34.000	0.000	0.000	0.000	
3500	35.000	0.000	0.000	0.000	
3600	36.000	0.000	0.000	0.000	
3700	37.000	0.000	0.000	0.000	
3800	38.000	0.000	0.000	0.000	
3900	39.000	0.000	0.000	0.000	
4000	40.000	0.000	0.000	0.000	
4100	41.000	0.000	0.000	0.000	
4200	42.000	0.000	0.000	0.000	
4300	43.000	0.000	0.000	0.000	
4400	44.000	0.000	0.000	0.000	
4500	45.000	0.000	0.000	0.000	
4600	46.000	0.000	0.000	0.000	
4700	47.000	0.000	0.000	0.000	
4800	48.000	0.000	0.000	0.000	
4900	49.000	0.000	0.000	0.000	
5000	50.000	0.000	0.000	0.000	



H Ex 31 49 2

5" Steel B. L. Rifle No. 1

Breech Block



H Ex 3 / 49 2

No. 2529.

Marks, $5 R_1 B B$
 $T_1 M$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000450	.000150	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000750	.000150	0.	.....	
6,000	30,000	.000900	.000150	0.	.....	
7,000	35,000	.001100	.000200	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001450	.000200	.....	.....	
10,000	50,000	.001600	.000150	.....	.....	
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001800	.000050	.....	.....	
11,000	55,000	.001850	.000050	.....	.....	
11,200	56,000	.001900	.000050			Elastic limit.
11,400	57,000	.002150	.000250	.....	.....	
11,600	58,000	.002800	.000650	.....	.....	
11,800	59,000	.003700	.000900	.....	.....	
12,000	60,000	.004700	.001000	.....	.....	
12,400	62,000	.006250	.001550	.....	.....	
12,800	64,000	.007950	.001700	.....	.....	
13,200	66,000	.009500	.001550	.....	.....	
13,600	68,000	.011250	.001750	.....	.....	
14,000	70,000	.012850	.001600	.....	.....	
14,400	72,000	.014600	.001750	.....	.....	
14,800	74,000	.016500	.001900	.....	.....	
15,200	76,000	.018500	.002000	.....	.....	
15,600	78,000	.020600	.002100	.....	.....	
16,000	80,000	.022500	.001900	.....	.....	
16,400	82,000	.025000	.002500	.....	.....	
16,800	84,000	.027600	.002600	.....	.....	
17,200	86,000	.030000	.002400	.....	.....	
17,600	88,000	.034000	.004000	.....	.....	
18,000	90,000	.038000	.004000	.....	.....	
18,400	92,000	.042500	.004500	.....	.....	
18,800	94,000	.047000	.004500	.....	.....	
19,200	96,000	.0550	.0080	.....	.....	
19,600	98,000	.0650	.0100	.....	.....	
20,000	100,000	.0700	.0050	.....	.....	
20,400	102,000	.0950	.0250	.....	.....	
20,500	102,500	.1150	.0200			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	102,500
Elastic limit per square inch of original section	do...	56,000
Elongation per inch after rupture	inch..	0.2050
Elongation per inch under strain at elastic limit	do...	.001900
Reduction in diameter at point of rupture	do ..	.095
Reduction in area after rupture, per centum of original section		34.0
Position of rupture		1".05 from neck
Character of broken surface	granular, 40 per centum; silky, 60 per centum	
Elongation of inch sections		".17, ".24*

No. 656.

Marks, ^{5 R₁ B B}
_{T₂ M}

Length, 4".502.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000267	.000167	0.	.....	
7,500	15,000	.000433	.000166	0.	.....	
10,000	20,000	.000600	.000167	0.	.....	
12,500	25,000	.000733	.000133	0.	.....	
15,000	30,000	.000867	.000134	0.	.....	
17,500	35,000	.001067	.000200	.....	.....	
20,000	40,000	.001267	.000200	.....	.....	
22,500	45,000	.001433	.000166	.....	.....	
25,000	50,000	.001600	.000167	.....	.....	
25,500	51,000	.001667	.000067	.....	.....	
26,000	52,000	.001667	0.	.....	.....	
26,500	53,000	.001733	.000066	.....	.....	
27,000	54,000	.001767	.000034	.....	.....	
27,500	55,000	.001733	.000034			Elastic limit.
28,000	56,000	.001867	.000134	.....	.....	
28,500	57,000	.002267	.000400	.....	.....	
29,000	58,000	.002933	.000666	.....	.....	
29,500	59,000	.003500	.000567	.....	.....	
30,000	60,000	.004033	.000533			Ultimate strength.
51,050	102,100	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 55,000
 Compression per inch under stress at elastic limitinch.. 0.001733
 Ultimate strength per square inch of original section.....pounds.. 102,100
 Manner of failuretriple flexure

No. 2526.

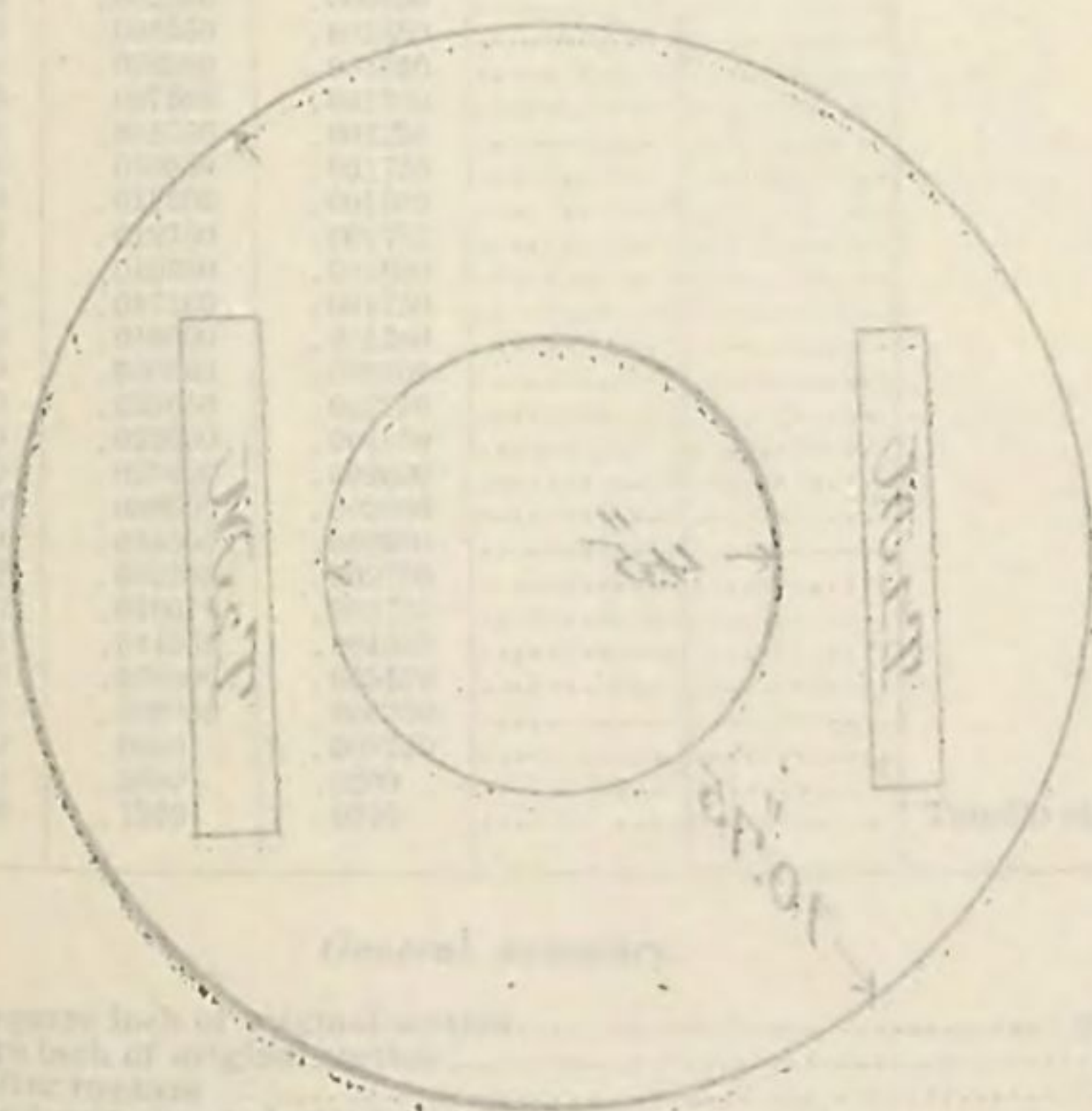
Marks, 17, BR

Diameter, 1 1/2 in.

Sectional area, .20 square inch.

2" Steel B. L. Rifle No. 1

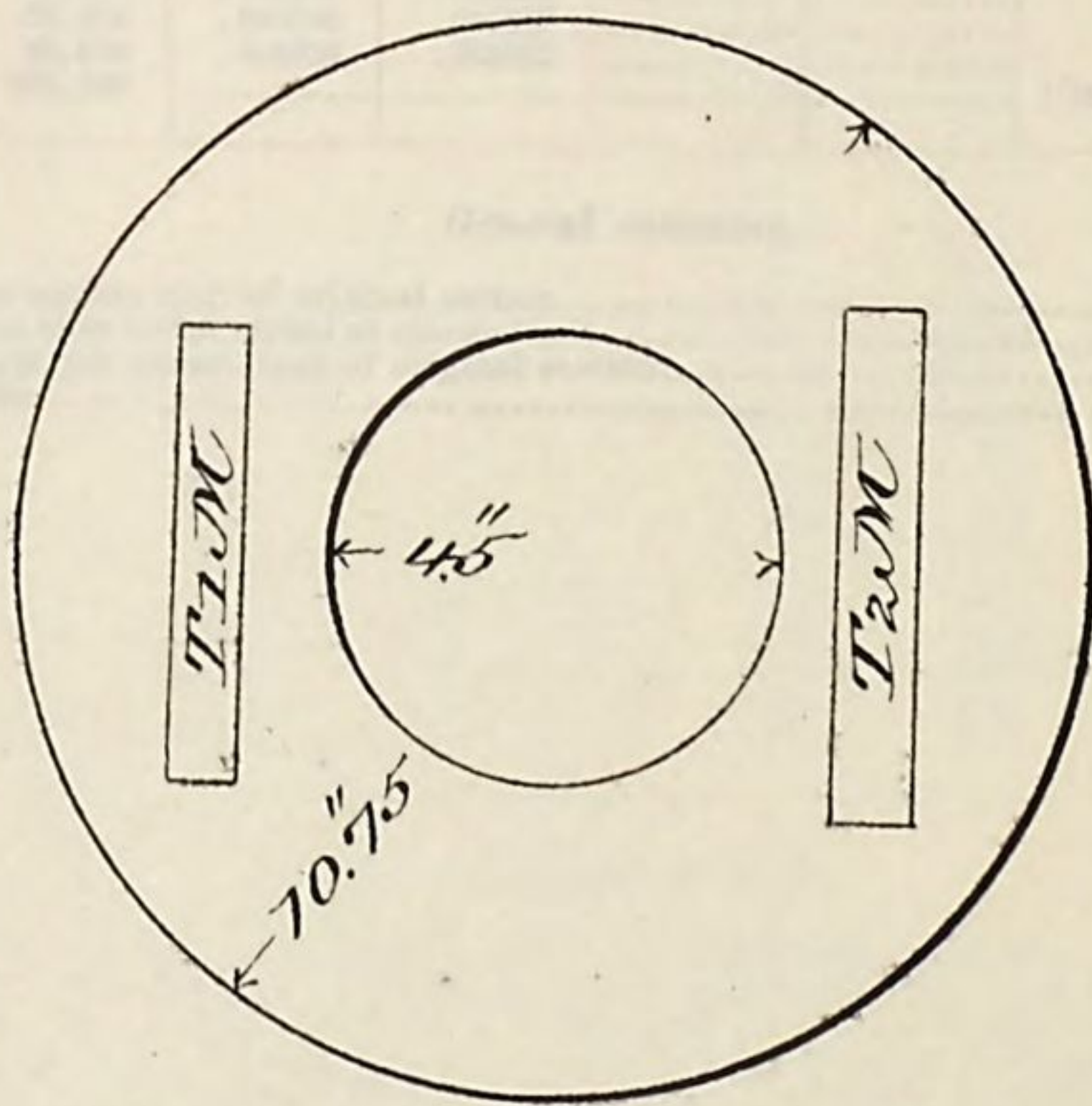
Force	Force	Force	Force	Force	Force	Force
100	1,000	100	1,000	100	1,000	100
200	2,000	200	2,000	200	2,000	200
300	3,000	300	3,000	300	3,000	300
400	4,000	400	4,000	400	4,000	400
500	5,000	500	5,000	500	5,000	500
600	6,000	600	6,000	600	6,000	600
700	7,000	700	7,000	700	7,000	700
800	8,000	800	8,000	800	8,000	800
900	9,000	900	9,000	900	9,000	900
1,000	10,000	1,000	10,000	1,000	10,000	1,000
1,100	11,000	1,100	11,000	1,100	11,000	1,100
1,200	12,000	1,200	12,000	1,200	12,000	1,200
1,300	13,000	1,300	13,000	1,300	13,000	1,300
1,400	14,000	1,400	14,000	1,400	14,000	1,400
1,500	15,000	1,500	15,000	1,500	15,000	1,500
1,600	16,000	1,600	16,000	1,600	16,000	1,600
1,700	17,000	1,700	17,000	1,700	17,000	1,700
1,800	18,000	1,800	18,000	1,800	18,000	1,800
1,900	19,000	1,900	19,000	1,900	19,000	1,900
2,000	20,000	2,000	20,000	2,000	20,000	2,000
2,100	21,000	2,100	21,000	2,100	21,000	2,100
2,200	22,000	2,200	22,000	2,200	22,000	2,200
2,300	23,000	2,300	23,000	2,300	23,000	2,300
2,400	24,000	2,400	24,000	2,400	24,000	2,400
2,500	25,000	2,500	25,000	2,500	25,000	2,500
2,600	26,000	2,600	26,000	2,600	26,000	2,600
2,700	27,000	2,700	27,000	2,700	27,000	2,700
2,800	28,000	2,800	28,000	2,800	28,000	2,800
2,900	29,000	2,900	29,000	2,900	29,000	2,900
3,000	30,000	3,000	30,000	3,000	30,000	3,000
3,100	31,000	3,100	31,000	3,100	31,000	3,100
3,200	32,000	3,200	32,000	3,200	32,000	3,200
3,300	33,000	3,300	33,000	3,300	33,000	3,300
3,400	34,000	3,400	34,000	3,400	34,000	3,400
3,500	35,000	3,500	35,000	3,500	35,000	3,500
3,600	36,000	3,600	36,000	3,600	36,000	3,600
3,700	37,000	3,700	37,000	3,700	37,000	3,700
3,800	38,000	3,800	38,000	3,800	38,000	3,800
3,900	39,000	3,900	39,000	3,900	39,000	3,900
4,000	40,000	4,000	40,000	4,000	40,000	4,000
4,100	41,000	4,100	41,000	4,100	41,000	4,100
4,200	42,000	4,200	42,000	4,200	42,000	4,200
4,300	43,000	4,300	43,000	4,300	43,000	4,300
4,400	44,000	4,400	44,000	4,400	44,000	4,400
4,500	45,000	4,500	45,000	4,500	45,000	4,500
4,600	46,000	4,600	46,000	4,600	46,000	4,600
4,700	47,000	4,700	47,000	4,700	47,000	4,700
4,800	48,000	4,800	48,000	4,800	48,000	4,800
4,900	49,000	4,900	49,000	4,900	49,000	4,900
5,000	50,000	5,000	50,000	5,000	50,000	5,000



H E 31 40 5

5" Steel B. L. Rifle No. 1

Base Ring



H Ex 3 / 49 2

No. 2526.

Marks, $\frac{5}{16}$ R₁ B R
T₁ M

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000700	.000150	0.	.....	
5,000	25,000	.000800	.000100	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001200	.000200	.....	.....	
8,000	40,000	.001400	.000200	.....	.....	
9,000	45,000	.001550	.000150	.....	.....	
10,000	50,000	.001700	.000150	.....	.....	
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001750	0.	.....	.....	
10,600	53,000	.001800	.000050	.....	.....	
10,800	54,000	.001850	.000050	.....	.....	
11,000	55,000	.001950	.000100	.....	.....	
11,200	56,000	.002050	.000100	.....	.....	
11,400	57,000	.002100	.000050	.....	.....	
11,600	58,000	.002200	.000100			Elastic limit.
11,800	59,000	.002500	.000300	.....	.....	
12,000	60,000	.002900	.000400	.....	.....	
12,400	62,000	.004550	.001650	.....	.....	
12,800	64,000	.006200	.001650	.....	.....	
13,200	66,000	.007500	.001300	.....	.....	
13,600	68,000	.008750	.001250	.....	.....	
14,000	70,000	.010500	.001750	.....	.....	
14,400	72,000	.012000	.001500	.....	.....	
14,800	74,000	.013750	.001750	.....	.....	
15,200	76,000	.015350	.001600	.....	.....	
15,600	78,000	.017100	.001750	.....	.....	
16,000	80,000	.019000	.001900	.....	.....	
16,400	82,000	.020800	.001800	.....	.....	
16,800	84,000	.023050	.002250	.....	.....	
17,200	86,000	.025000	.001950	.....	.....	
17,600	88,000	.027600	.002600	.....	.....	
18,000	90,000	.030600	.003000	.....	.....	
18,400	92,000	.033500	.002900	.....	.....	
18,800	94,000	.036250	.002750	.....	.....	
19,200	96,000	.040000	.003750	.....	.....	
19,600	98,000	.044550	.004550	.....	.....	
20,000	100,000	.050000	.005450	.....	.....	
20,400	102,000	.056250	.006250	.....	.....	
20,800	104,000	.0650	.008750	.....	.....	
21,200	106,000	.0850	.0200			Tensile strength.
21,400	107,000	.1200	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	107,000
Elastic limit per square inch of original section.....	do...	58,000
Elongation per inch after rupture.....	inch ..	0.1950
Elongation per inch under strain at elastic limit.....	do...	.002200
Reduction in diameter at point of rupture.....	do...	.095
Reduction in area after rupture, per centum of original section.....		34.0
Position of rupture.....	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	granular; dull silky center	
Elongation of inch sections.....	".25*, ".14	

No. 655.

Marks, $5 R_1 B R$
 $T_2 M$

Length, 4".504.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000233	.000133	0.	.....	
7,500	15,000	.000367	.000134	0.	.....	
10,000	20,000	.000533	.000166	0.	.....	
12,500	25,000	.000700	.000167	0.	.....	
15,000	30,000	.000867	.000167	0.	.....	
17,500	35,000	.001067	.000200	.....	.....	
20,000	40,000	.001233	.000166	.....	.....	
22,500	45,000	.001367	.000134	.....	.....	
25,000	50,000	.001500	.000133	.....	.....	
25,500	51,000	.001567	.000067	.....	.....	
26,000	52,000	.001667	.000100	.....	.....	
26,500	53,000	.001700	.000033	.....	.....	
27,000	54,000	.001733	.000033	.....	.....	
27,500	55,000	.001833	.000100	.....	.....	
28,000	56,000	.001867	.000034	.....	.....	
28,500	57,000	.001900	.000033			Elastic limit.
29,000	58,000	.002033	.000133	.....	.....	
29,500	59,000	.002133	.000100	.....	.....	
30,000	60,000	.002533	.000400	.....	.....	
30,500	61,000	.003467	.000934	.....	.....	
31,000	62,000	.004000	.000533			Ultimate strength.
31,500	63,000	.004600	.000600	.....	.....	
32,000	64,000	.005333	.000733	.....	.....	
52,400	104,800	.....	.....	.....	.....	

General summary.

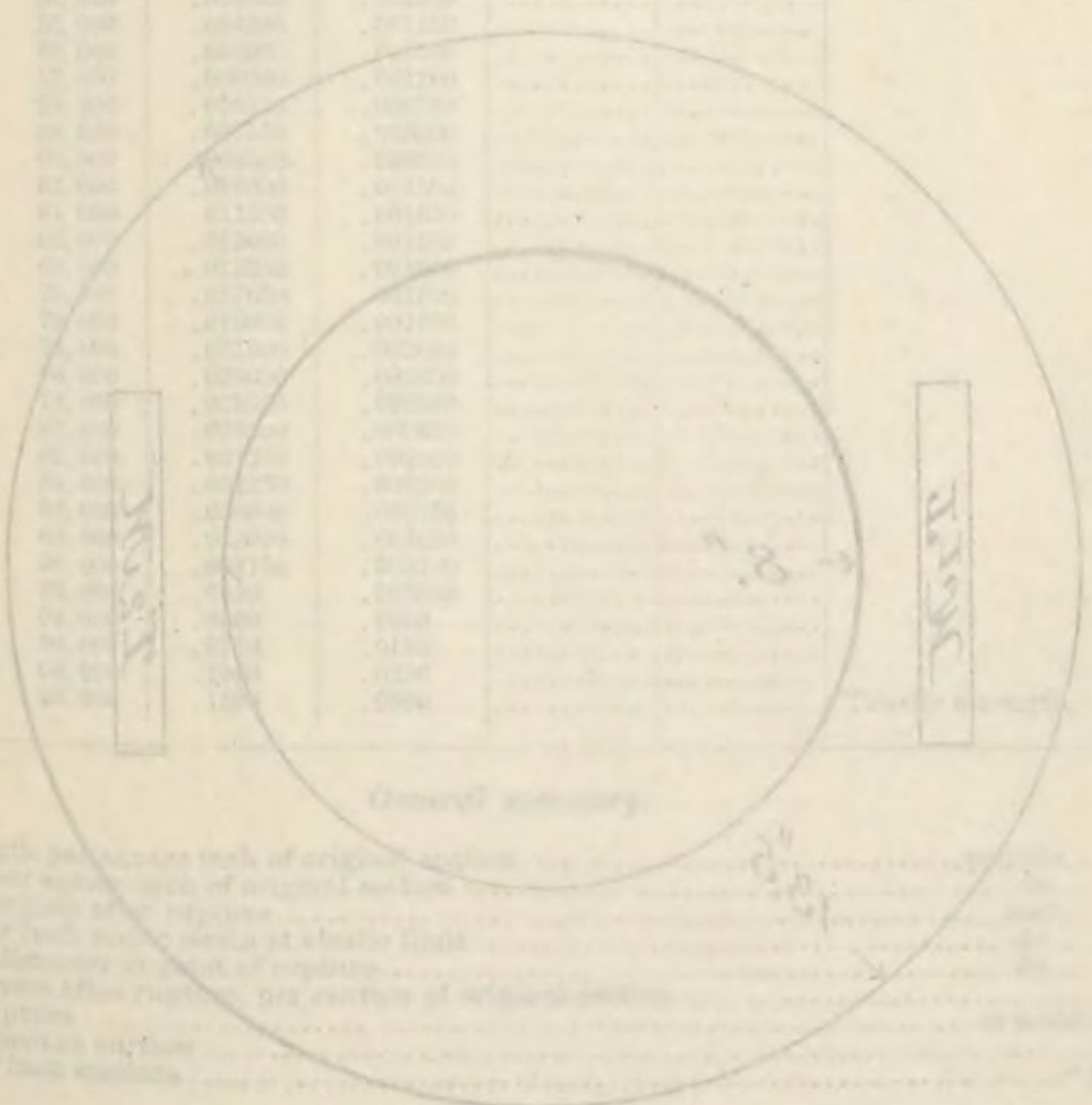
Elastic limit per square inch of original section pounds.. 57,000
 Compression per inch under stress at elastic limit inch.. 0.001900
 Ultimate strength per square inch of original section pounds.. 104,800
 Manner of failure..... triple flexure

No. 2327.

Weight, 2 1/2 lbs.
Diameter, 2 1/2 in.
Sectional area, 25 square inch.

2" Steel B.L. Rifle No. 1

Feet	Feet	Feet	Feet	Feet	Feet	Feet
100	100	100	100	100	100	100
101	101	101	101	101	101	101
102	102	102	102	102	102	102
103	103	103	103	103	103	103
104	104	104	104	104	104	104
105	105	105	105	105	105	105
106	106	106	106	106	106	106
107	107	107	107	107	107	107
108	108	108	108	108	108	108
109	109	109	109	109	109	109
110	110	110	110	110	110	110
111	111	111	111	111	111	111
112	112	112	112	112	112	112
113	113	113	113	113	113	113
114	114	114	114	114	114	114
115	115	115	115	115	115	115
116	116	116	116	116	116	116
117	117	117	117	117	117	117
118	118	118	118	118	118	118
119	119	119	119	119	119	119
120	120	120	120	120	120	120
121	121	121	121	121	121	121
122	122	122	122	122	122	122
123	123	123	123	123	123	123
124	124	124	124	124	124	124
125	125	125	125	125	125	125
126	126	126	126	126	126	126
127	127	127	127	127	127	127
128	128	128	128	128	128	128
129	129	129	129	129	129	129
130	130	130	130	130	130	130
131	131	131	131	131	131	131
132	132	132	132	132	132	132
133	133	133	133	133	133	133
134	134	134	134	134	134	134
135	135	135	135	135	135	135
136	136	136	136	136	136	136
137	137	137	137	137	137	137
138	138	138	138	138	138	138
139	139	139	139	139	139	139
140	140	140	140	140	140	140
141	141	141	141	141	141	141
142	142	142	142	142	142	142
143	143	143	143	143	143	143
144	144	144	144	144	144	144
145	145	145	145	145	145	145
146	146	146	146	146	146	146
147	147	147	147	147	147	147
148	148	148	148	148	148	148
149	149	149	149	149	149	149
150	150	150	150	150	150	150
151	151	151	151	151	151	151
152	152	152	152	152	152	152
153	153	153	153	153	153	153
154	154	154	154	154	154	154
155	155	155	155	155	155	155
156	156	156	156	156	156	156
157	157	157	157	157	157	157
158	158	158	158	158	158	158
159	159	159	159	159	159	159
160	160	160	160	160	160	160
161	161	161	161	161	161	161
162	162	162	162	162	162	162
163	163	163	163	163	163	163
164	164	164	164	164	164	164
165	165	165	165	165	165	165
166	166	166	166	166	166	166
167	167	167	167	167	167	167
168	168	168	168	168	168	168
169	169	169	169	169	169	169
170	170	170	170	170	170	170
171	171	171	171	171	171	171
172	172	172	172	172	172	172
173	173	173	173	173	173	173
174	174	174	174	174	174	174
175	175	175	175	175	175	175
176	176	176	176	176	176	176
177	177	177	177	177	177	177
178	178	178	178	178	178	178
179	179	179	179	179	179	179
180	180	180	180	180	180	180
181	181	181	181	181	181	181
182	182	182	182	182	182	182
183	183	183	183	183	183	183
184	184	184	184	184	184	184
185	185	185	185	185	185	185
186	186	186	186	186	186	186
187	187	187	187	187	187	187
188	188	188	188	188	188	188
189	189	189	189	189	189	189
190	190	190	190	190	190	190
191	191	191	191	191	191	191
192	192	192	192	192	192	192
193	193	193	193	193	193	193
194	194	194	194	194	194	194
195	195	195	195	195	195	195
196	196	196	196	196	196	196
197	197	197	197	197	197	197
198	198	198	198	198	198	198
199	199	199	199	199	199	199
200	200	200	200	200	200	200

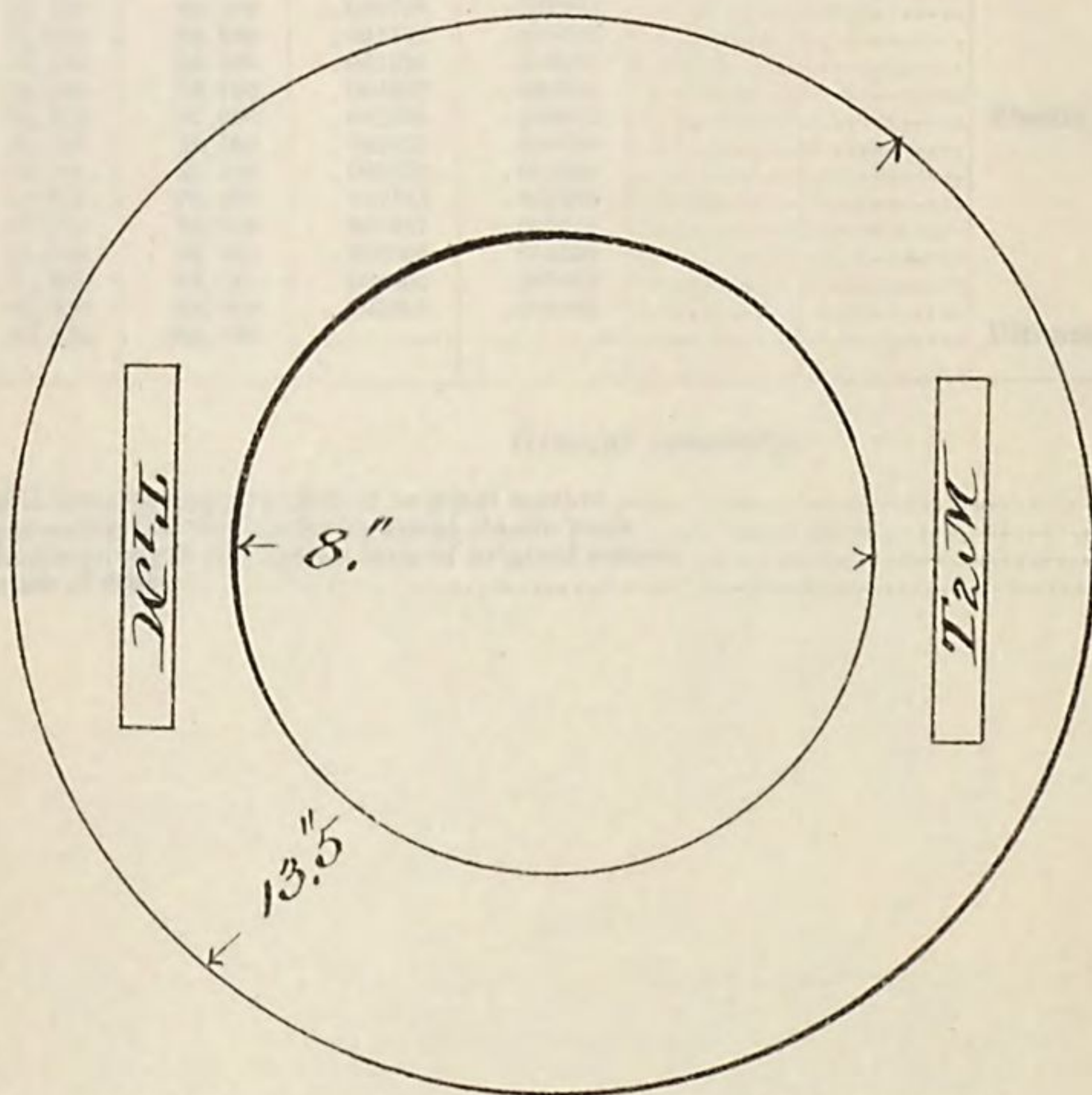


Technical specifications and notes regarding the rifle barrel, including material details and manufacturing standards.

H Ex 31 49 5

5" Steel B. L. Rifle No. 1

Sleeve



H Ex 3 / 49 2

No. 2527.

Marks, $\frac{5 R_1 S}{T_1 M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000750	.000200	0.	.....	
5,000	25,000	.000950	.000200	0.	.....	
6,000	30,000	.001100	.000150	0.	.....	
7,000	35,000	.001300	.000200	.000050	.000050	
8,000	40,000	.001450	.000150	.000050	0.	
9,000	45,000	.001550	.000100	.....	.....	
10,000	50,000	.001750	.000200			Elastic limit.
10,200	51,000	.001850	.000100	.....	.....	
10,400	52,000	.002000	.000150	.....	.....	
10,600	53,000	.002150	.000150	.....	.....	
10,800	54,000	.003050	.000900	.....	.....	
11,000	55,000	.004200	.001150	.....	.....	
11,200	56,000	.004900	.000700	.....	.....	
11,400	57,000	.006000	.001100	.....	.....	
11,600	58,000	.006750	.000750	.....	.....	
11,800	59,000	.007550	.000800	.....	.....	
12,000	60,000	.008500	.000950			
12,400	62,000	.010000	.001500	.....	.....	
12,800	64,000	.011650	.001650	.....	.....	
13,200	66,000	.013600	.001950	.....	.....	
13,600	68,000	.015250	.001650	.....	.....	
14,000	70,000	.017050	.001800	.....	.....	
14,400	72,000	.019000	.001950	.....	.....	
14,800	74,000	.021000	.002000	.....	.....	
15,200	76,000	.023050	.002050	.....	.....	
15,600	78,000	.025550	.002500	.....	.....	
16,000	80,000	.028200	.002650			
16,400	82,000	.031250	.003050	.....	.....	
16,800	84,000	.034250	.003000	.....	.....	
17,200	86,000	.038000	.003750	.....	.....	
17,600	88,000	.042050	.004050	.....	.....	
18,000	90,000	.047150	.005100	.....	.....	
18,400	92,000	.0550	.005850	.....	.....	
18,800	94,000	.0600	.0050	.....	.....	
19,200	96,000	.0750	.0150	.....	.....	
19,600	98,000	.1000	.0250			Tensile strength.
19,780	98,900	.1500	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	98,900
Elastic limit per square inch of original section	do...	51,000
Elongation per inch after rupture	inch..	0.2450
Elongation per inch under strain at elastic limit	do...	.001850
Reduction in diameter at point of rupture	do...	.135
Reduction in area after rupture, per centum of original section		46.2
Position of rupture	at middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".26*, ".23*	

No. 2528.

Marks, $\frac{5 R_1 S}{T_2 M}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000450	.000200	0.	.....	
4,000	20,000	.000600	.000150	0.	.....	
5,000	25,000	.000800	.000200	0.	.....	
6,000	30,000	.001000	.000200	0.	.....	
7,000	35,000	.001100	.000100	0.	.....	
8,000	40,000	.001250	.000150	0.	.....	
9,000	45,000	.001450	.000200	.....	.....	
10,000	50,000	.001600	.000150	.....	.....	
10,200	51,000	.001650	.000050	.....	.....	
10,400	52,000	.001700	.000050	.....	.....	
10,600	53,000	.001750	.000050	.....	.....	
10,800	54,000	.001800	.000050	.....	.....	
11,000	55,000	.001850	.000050			Elastic limit.
11,200	56,000	.002000	.000150	.....	.....	
11,400	57,000	.002250	.000250	.....	.....	
11,600	58,000	.002850	.000600	.....	.....	
11,800	59,000	.003650	.000800	.....	.....	
12,000	60,000	.004350	.000700	.....	.....	
12,400	62,000	.006250	.001900	.....	.....	
12,800	64,000	.007500	.001250	.....	.....	
13,200	66,000	.009500	.002000	.....	.....	
13,600	68,000	.011000	.001500	.....	.....	
14,000	70,000	.012700	.001700	.....	.....	
14,400	72,000	.014250	.001550	.....	.....	
14,800	74,000	.016000	.001750	.....	.....	
15,200	76,000	.018000	.002000	.....	.....	
15,600	78,000	.019750	.001750	.....	.....	
16,000	80,000	.021750	.002000	.....	.....	
16,400	82,000	.024000	.002250	.....	.....	
16,800	84,000	.026250	.002250	.....	.....	
17,200	86,000	.029300	.002750	.....	.....	
17,600	88,000	.032000	.003000	.....	.....	
18,000	90,000	.035000	.003000	.....	.....	
18,400	92,000	.038500	.003500	.....	.....	
18,800	94,000	.043500	.005000	.....	.....	
19,200	96,000	.048250	.004750	.....	.....	
19,600	98,000	.0550	.006750	.....	.....	
20,000	100,000	.0650	.0100	.....	.....	
20,400	102,000	.0750	.0100	.....	.....	
20,790	103,950	.1150	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	103,950
Elastic limit per square inch of original section.....	do...	55,000
Elongation per inch after rupture.....	inch..	0.2300
Elongation per inch under strain at elastic limit.....	do...	.001850
Reduction in diameter at point of rupture.....	do...	.125
Reduction in area after rupture, per centum of original section.....		43.3
Position of rupture.....	".95 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".17, ".29	

OBTURATOR STEM.

No. 654.

Marks, ^{5 R₁ O S}_{L₁}
Length, 4''⁵⁰⁴.
Diameter, ''⁷⁹⁸.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000067	.000067	— .000033	— .000033	
5,000	10,000	.000233	.000166	— .000033	0.	
7,500	15,000	.000400	.000167	— .000067	— .000034	
10,000	20,000	.000567	.000167	— .000067	0.	
12,500	25,000	.000767	.000200	— .000067	0.	
15,000	30,000	.000900	.000133	— .000067	0.	
17,500	35,000	.001067	.000167			
20,000	40,000	.001233	.000166			
22,500	45,000	.001400	.000167			
25,000	50,000	.001533	.000133			
25,500	51,000	.001567	.000034			
26,000	52,000	.001600	.000033			
26,500	53,000	.001633	.000033			
27,000	54,000	.001667	.000034			
27,500	55,000	.001667	0.			
28,000	56,000	.001667	0.			
28,500	57,000	.001667	0.			
29,000	58,000	.001700	.000033			Elastic limit.
29,500	59,000	.001667	— .000033			
30,000	60,000	.002933	.001266			
30,500	61,000	.004267	.001334			
31,000	62,000	.005367	.001100			
31,500	63,000	.006200	.000833			Ultimate strength.
32,000	64,000	.007867	.001667			
50,800	101,600					

General summary.

Elastic limit per square inch of original sectionpounds.. 59,000
Compression per inch under stress at elastic limit,inch.. 0.001667
Ultimate strength per square inch of original section.....pounds.. 101,600
Manner of failure.....triple flexure

TABULATION OF TENSION SPECIMENS FROM 5-INCH STEEL B. L. RIFLE
NO. 1.

Number of test.	Position in gun.	Location of specimens.	Elastic limit per square inch.	Tensile strength per square inch.	Elongation.	Contraction of area.	Appearance of fracture.
			<i>Pounds.</i>	<i>Pounds.</i>	<i>Per ct.</i>	<i>Per ct.</i>	
2530	Tube	Middle .	42,000	79,000	29.5	51.9	Silky.
2531	...do	do	42,000	80,050	26.5	54.6	Do.
2532	...do	do	42,000	83,050	20.5	34.0	Granular, 65 per cent.; silky, 35 per cent.
2533	...do	do	42,000	82,850	24.5	46.2	Silky.
2551	Jacket.....	Inside ..	48,000	93,600	6.5	9.5	Granular; line of flaky metal.
2552	...do	Middle .	45,000	95,600	22.5	43.3	Silky.
2553	...do	do	55,000	106,550	18.5	27.4	Granular; dull spot.
2554	...do	do	56,000	105,700	16.0	27.4	Do.
*2708	...do	Inside ..	46,000	94,000	8.0	9.5	Granular; flaky streaks.
*2709	...do	Middle	46,000	94,750	14.5	16.9	Granular; dull flaky spot.
*2710	...do	do	46,000	95,400	22.5	46.2	Silky.
2542	Trunnion hoop..	Inside ..	56,000	99,500	25.0	51.9	Fine, silky.
2543	...do	Middle	55,000	99,100	25.0	51.9	Do.
2544	...do	do	56,000	100,000	22.5	40.3	Silky, interspersed with granular.
2529	Breech-block ...	do	56,000	102,500	20.5	34.0	Granular, 40 per cent.; silky, 60 per cent.
2526	Base ring	do	58,000	107,000	19.5	34.0	Granular; dull silky center.
2527	Sleeve	do	51,000	98,900	24.5	46.2	Silky.
2528	...do	do	55,000	103,950	23.0	43.3	Do.

*Additional specimen.

TABULATION OF COMPRESSION SPECIMENS FROM 5-INCH STEEL B. L. RIFLE NO. 1

Number of tests.	Position in gun.	Location of specimens.	Elastic limit per square inch.	Ultimate strength per square inch.	Manner of failure.
			<i>Pounds.</i>	<i>Pounds.</i>	
657	Tube.....	Middle ...	45,000	80,760	Triple flexure.
659	Jacket	do	46,000	91,320	Do.
656	Breech-block	do	55,000	102,100	Do.
655	Base ring	do	57,000	104,800	Do.
654	Obturator stem.....	.....	59,000	101,600	Do.

8-INCH STEEL B. L. RIFLE NO. 1.

STEEL SPECIMENS

FROM

TUBE, TRUNNION-HOOP, AND COUPLING-PIN.

SPECIMENS FROM 8-INCH STEEL R. L. RIFLE NO. 1.

8" Steel R. L. Rifle No. 1.

No. 2335.

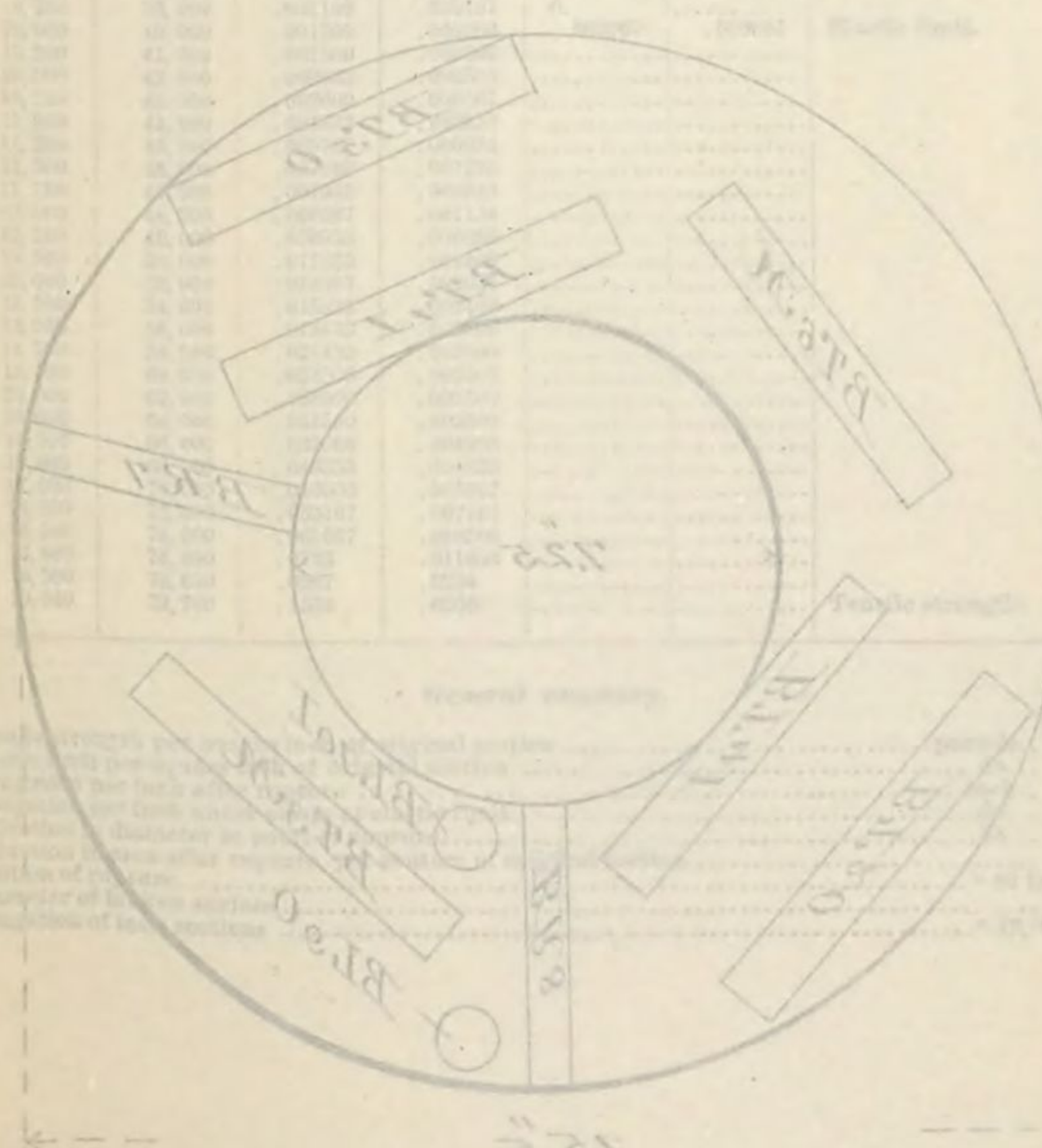
Marked, 27, 1

Diameter, .565.

Sectional area, .37 square inch.

Tube

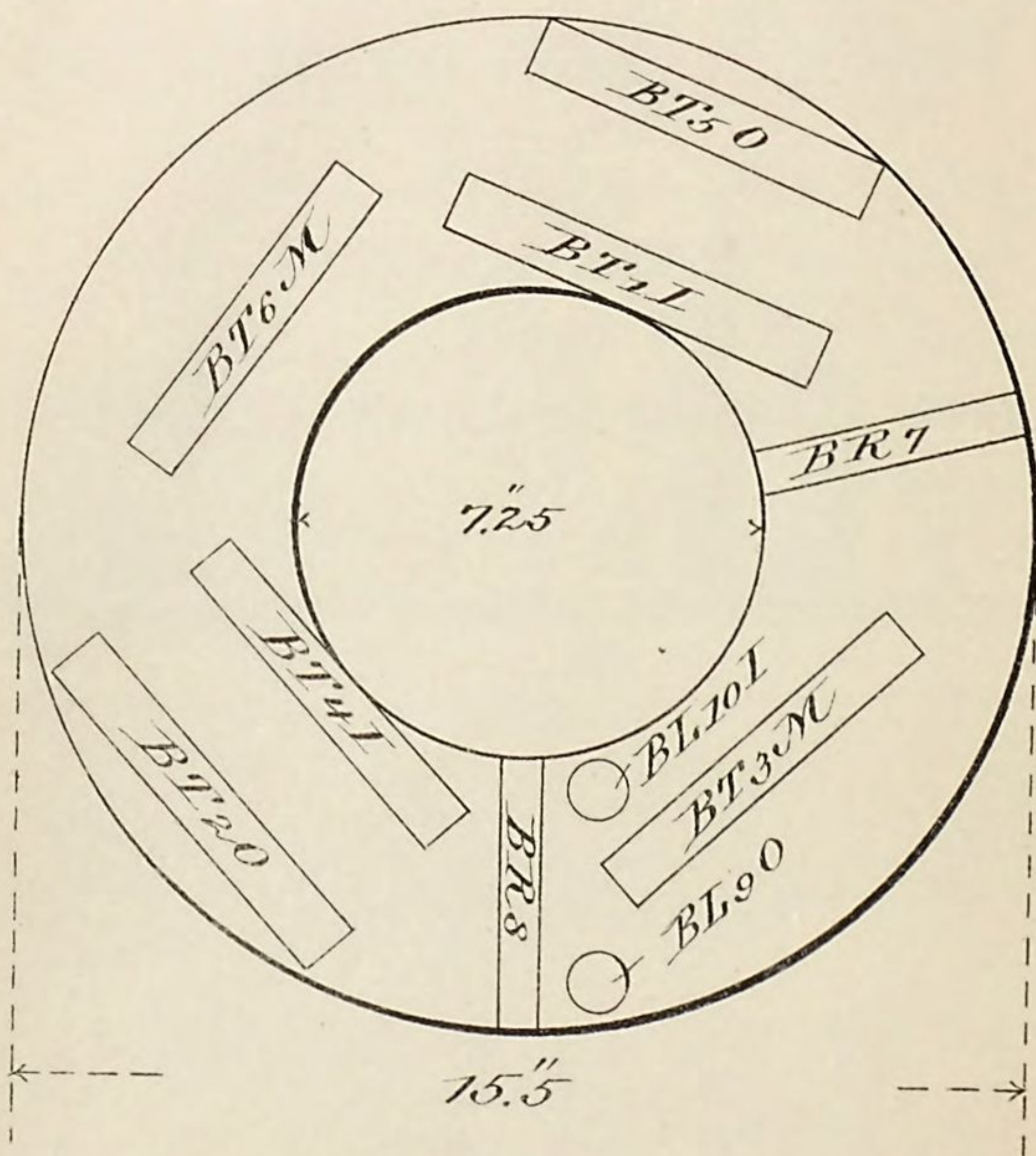
Applied Load		Elongation per inch	Reduction of area per inch	Tensile strength	Yield point	Remarks
Total	Per square inch					
Pounds	Pounds	in.	in.	lb.	lb.	Initial load
200	1.000					
400	2.000					
600	3.000					
800	4.000					
1000	5.000					
1200	6.000					
1400	7.000					
1600	8.000					
1800	9.000					
2000	10.000					
2200	11.000					
2400	12.000					
2600	13.000					
2800	14.000					
3000	15.000					
3200	16.000					
3400	17.000					
3600	18.000					
3800	19.000					
4000	20.000					
4200	21.000					
4400	22.000					
4600	23.000					
4800	24.000					
5000	25.000					
5200	26.000					
5400	27.000					
5600	28.000					
5800	29.000					
6000	30.000					
6200	31.000					
6400	32.000					
6600	33.000					
6800	34.000					
7000	35.000					
7200	36.000					
7400	37.000					
7600	38.000					
7800	39.000					
8000	40.000					
8200	41.000					
8400	42.000					
8600	43.000					
8800	44.000					
9000	45.000					
9200	46.000					
9400	47.000					
9600	48.000					
9800	49.000					
10000	50.000					



8" Steel B.L. Rifle No.1.

Tube

Breech end



SPECIMENS FROM 8-INCH STEEL B. L. RIFLE NO. 1.

TUBE.

No. 2335.

Marks, $\frac{8 R_1 T}{B T_1 I}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000300	.000133	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000600	.000133	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
10,000	40,000	.001300	.000200	.000067	.000067	Elastic limit.
10,250	41,000	.001500	.000200	.....	.....	
10,500	42,000	.002033	.000533	.....	.....	
10,750	43,000	.002600	.000567	.....	.....	
11,000	44,000	.004833	.002233	.....	.....	
11,250	45,000	.005767	.000934	.....	.....	
11,500	46,000	.007000	.001233	.....	.....	
11,750	47,000	.007933	.000933	.....	.....	
12,000	48,000	.009067	.001134	.....	.....	
12,250	49,000	.009933	.000866	.....	.....	
12,500	50,000	.011333	.001400	.....	.....	
13,000	52,000	.013367	.002034	.....	.....	
13,500	54,000	.015833	.002466	.....	.....	
14,000	56,000	.018433	.002600	.....	.....	
14,500	58,000	.021433	.003000	.....	.....	
15,000	60,000	.024500	.003067	.....	.....	
15,500	62,000	.028000	.003500	.....	.....	
16,000	64,000	.031500	.003500	.....	.....	
16,500	66,000	.035500	.004000	.....	.....	
17,000	68,000	.040333	.004833	.....	.....	
17,500	70,000	.046000	.005667	.....	.....	
18,000	72,000	.053167	.007167	.....	.....	
18,500	74,000	.061667	.008500	.....	.....	
19,000	76,000	.0723	.011633	.....	.....	
19,500	78,000	.0967	.0234	.....	.....	
19,940	79,760	.1533	.0566	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	79,760
Elastic limit per square inch of original section.....	do...	40,000
Elongation per inch after rupture.....	inch..	0.2267
Elongation per inch under strain at elastic limit.....	do...	.001300
Reduction in diameter at point of rupture.....	do...	.155
Reduction in area after rupture, per centum of original section.....		47.2
Position of rupture.....	".80 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".12, ".17, ".39*	

No. 2336.

Marks, $\frac{8 R_1 T}{B T_2 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000467	.000134	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
10,000	40,000	.001300	.000167	0.	.....	
10,250	41,000	.001333	.000033	.....	.....	
10,500	42,000	.001400	.000067	.....	.....	
10,750	43,000	.001433	.000033	.....	.....	
11,000	44,000	.001467	.000034	.....	.....	Elastic limit.
11,250	45,000	.001767	.000300	.....	.....	
11,500	46,000	.003567	.001800	.....	.....	
11,750	47,000	.004500	.000933	.....	.....	
12,000	48,000	.005800	.001300	.....	.....	
12,250	49,000	.006800	.001000	.....	.....	
12,500	50,000	.008067	.001267	.....	.....	
13,000	52,000	.009833	.001766	.....	.....	
13,500	54,000	.012033	.002200	.....	.....	
14,000	56,000	.014167	.002134	.....	.....	
14,500	58,000	.016333	.002166	.....	.....	
15,000	60,000	.018833	.002500	.....	.....	
15,500	62,000	.021500	.002667	.....	.....	
16,000	64,000	.024400	.002900	.....	.....	
16,500	66,000	.027500	.003100	.....	.....	
17,000	68,000	.031000	.003500	.....	.....	
17,500	70,000	.035033	.004033	.....	.....	
18,000	72,000	.039700	.004667	.....	.....	
18,500	74,000	.045500	.005800	.....	.....	
19,000	76,000	.052000	.006500	.....	.....	
19,500	78,000	.060667	.008667	.....	.....	
20,000	80,000	.0700	.009333	.....	.....	
20,500	82,000	.0967	.0267	.....	.....	
20,860	83,440	.1367	.0400	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	83,440
Elastic limit per square inch of original section.....	do...	44,000
Elongation per inch after rupture.....	inch..	0.2267
Elongation per inch under strain at elastic limit.....	do...	.001467
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	1".30 from neck	
Character of broken surface.....	silky; trace of granulation	
Elongation of inch sections.....	".34* ".23, ".11	

No. 2337.

Marks, $\begin{smallmatrix} 8 R_1 T \\ B T_3 M \end{smallmatrix}$ Diameter, $\frac{11}{16}$ inch.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000533	.000200	0.	.....	
5,000	20,000	.000700	.000167	0.	.....	
6,250	25,000	.000833	.000133	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
10,000	40,000	.001400	.000233	.000033	.000033	
10,250	41,000	.001433	.000033			Elastic limit.
10,500	42,000	.001467	.000034	.....	.....	
10,750	43,000	.001533	.000066	.....	.....	
11,000	44,000	.001667	.000134	.....	.....	
11,250	45,000	.003000	.001333	.....	.....	
11,500	46,000	.004100	.001100	.....	.....	
11,750	47,000	.005067	.000967	.....	.....	
12,000	48,000	.006400	.001333	.....	.....	
12,250	49,000	.007267	.000867	.....	.....	
12,500	50,000	.008333	.001066	.....	.....	
13,000	52,000	.010200	.001867	.....	.....	
13,500	54,000	.012367	.002167	.....	.....	
14,000	56,000	.014667	.002300	.....	.....	
14,500	58,000	.016833	.002166	.....	.....	
15,000	60,000	.019333	.002500	.....	.....	
15,500	62,000	.021833	.002500			Tensile strength.
16,000	64,000	.024700	.002867	.....	.....	
16,500	66,000	.028167	.003467	.....	.....	
17,000	68,000	.031667	.003500	.....	.....	
17,500	70,000	.035833	.004166	.....	.....	
18,000	72,000	.040000	.004167	.....	.....	
18,500	74,000	.045500	.005500			
19,000	76,000	.052000	.006500			
19,500	78,000	.060000	.008000			
20,000	80,000	.0733	.0133			
20,500	82,000	.0967	.0234			
20,850	83,400	.1400	.0433			

General summary.

Tensile strength per square inch of original section.....	pounds..	83,400
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	0.2300
Elongation per inch under strain at elastic limit.....	do...	.001533
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	at middle of stem	
Character of broken surface.....	silky; slightly granular	
Elongation of inch sections.....	"13, ".41*, ".15	

No. 638.

Marks, $\frac{8 R_1 T}{B T_4 I}$

Length, 5".002.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000133	.000133	0.	.....	
5,000	10,000	.000333	.000200	0.	.....	
7,500	15,000	.000500	.000167	0.	.....	
10,000	20,000	.000667	.000167	.000033	.000033	
12,500	25,000	.000900	.000233	.000100	.000067	
15,000	30,000	.001100	.000200	.000133	.000033	
17,500	35,000	.001267	.000167	.000167	.000034	
18,000	36,000	.001300	.000033	.....	.....	
18,500	37,000	.001333	.000033	.....	.....	
19,000	38,000	.001367	.000034			Elastic limit.
19,500	39,000	.001400	.000033	.....	.....	
20,000	40,000	.001533	.000133	.000300	.000133	
20,500	41,000	.005200	.003667	.....	.....	
21,000	42,000	.006300	.001100	.....	.....	
21,500	43,000	.007233	.000933	.....	.....	
22,000	44,000	.008133	.000900			Ultimate strength.
35,180	70,360	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 39,000
 Compression per inch under stress at elastic limit inch.. 0.001400
 Ultimate strength per square inch of original section pounds.. 70,360
 Manner of failure.....triple flexure

No. 637.

Marks, $\frac{8 R_1 T}{B T_5 O}$
Length, 4'' .998.
Diameter, '' .798.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000033	.000033	— .000033	— .000033	
5,000	10,000	.000167	.000134	— .000033	0.	
7,500	15,000	.000300	.000133	— .000033	0.	
10,000	20,000	.000467	.000167	— .000033	0.	
12,500	25,000	.000667	.000200	0.	.000033	
15,000	30,000	.000833	.000166	0.	.....	
17,500	35,000	.001000	.000167	0.	.....	
20,000	40,000	.001200	.000200	0.	.....	
20,500	41,000	.001233	.000033	.....	.....	
21,000	42,000	.001300	.000067	.....	.....	
21,500	43,000	.001333	.000033	.....	.....	
22,000	44,000	.001400	.000067	.....	.....	
22,500	45,000	.001433	.000033	0.	.....	
23,000	46,000	.001467	.000034			Elastic limit.
23,500	47,000	.001500	.000033	.....	.....	
24,000	48,000	.002133	.000633	.....	.....	
24,500	49,000	.004000	.001867	.....	.....	
25,000	50,000	.005233	.001233	.003267	.003267	Ultimate strength.
40,650	81,300	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 47,000
Compression per inch under stress at elastic limit.....inch.. 0.001500
Ultimate strength per square inch of original sectionpounds.. 81,300
Manner of failure.....triple flexure.

No. 639.

Marks, $\frac{8}{B} R_1 T$

Length, 4".992.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000267	.000167	0.	.....	
7,500	15,000	.000433	.000166	0.	.....	
10,000	20,000	.000600	.000167	0.	.....	
12,500	25,000	.000767	.000167	.000033	.000033	
15,000	30,000	.000967	.000200	.000067	.000034	
17,500	35,000	.001167	.000200	.000067	0.	
18,000	36,000	.001233	.000066	.....	.....	
18,500	37,000	.001300	.000067	.....	.....	
19,000	38,000	.001367	.000067	.....	.....	
19,500	39,000	.001433	.000066	.....	.....	
20,000	40,000	.001500	.000067	.000167	.000100	Elastic limit.
20,500	41,000	.001633	.000133	.....	.....	
21,000	42,000	.005533	.003900	.....	.....	
21,500	43,000	.006767	.001234	.....	.....	
22,000	44,000	.007833	.001066			Ultimate strength.
36,420	72,840	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 40,000
 Compression per inch under stress at elastic limitinch.. 0.001500
 Ultimate strength per square inch of original sectionpounds.. 72,840
 Manner of failure.....triple flexure

No. 642.

Marks, $\frac{8 R_1 T}{B R_7}$

Length, 4".004.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000400	.000250	0.	.....	
7,500	15,000	.000550	.000150	0.	.....	
10,000	20,000	.000700	.000150	0.	.....	
12,500	25,000	.000850	.000150	0.	.....	
15,000	30,000	.001000	.000150	0.	.....	
17,500	35,000	.001150	.000150	0.	.....	
20,000	40,000	.001300	.000150	0.	.....	
20,500	41,000	.001350	.000050	.....	.....	
21,000	42,000	.001400	.000050	.....	.....	
21,500	43,000	.001400	0.	.....	.....	
22,000	44,000	.001450	.000050			Elastic limit.
22,500	45,000	.002100	.000650	.....	.....	
23,000	46,000	.002850	.000750	.....	.....	
23,500	47,000	.003750	.000900	.....	.....	
24,000	48,000	.004400	.000650	.....	.....	
24,500	49,000	.005400	.001000			Ultimate strength.
25,000	50,000	.006550	.001150	.....	.....	
46,850	93,700	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 44,000
 Compression per inch under stress at elastic limitinch.. 0.001450
 Ultimate strength per square inch of original sectionpounds.. 93,700
 Manner of failuretriple flexure

No. 643.

Marks, ^{8 R₁ T}_{B R₈}
Length, 4'''.003.
Diameter, '''.798.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000250	.000100	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000600	.000200	0.	.....	
12,500	25,000	.000750	.000150	0.	.....	
15,000	30,000	.000900	.000150	0.	.....	
17,500	35,000	.001100	.000200	0.	.....	
20,000	40,000	.001250	.000150	.000050	.000050	
20,500	41,000	.001300	.000050	.....	.....	
21,000	42,000	.001300	0.			Elastic limit.
21,500	43,000	.002000	.000700	.....	.....	
22,000	44,000	.002900	.000900	.....	.....	
22,500	45,000	.003450	.000550	.....	.....	
23,000	46,000	.004350	.000900	.....	.....	
23,500	47,000	.005550	.001200	.....	.....	
24,000	48,000	.006250	.000700	.....	.....	
24,500	49,000	.006950	.000700	.....	.....	
25,000	50,000	.007800	.000850	.....	.....	
44,940	89,880					Ultimate strength.

General summary.

Elastic limit per square inch of original sectionpounds.. 42,000
Compression per inch under stress at elastic limitinch.. 0.001300
Ultimate strength per square inch of original section.....pounds.. 89,880
Manner of failure.....triple flexure

No. 2338.

Marks, $\frac{8}{B} \frac{R_1}{L_9} \frac{T}{O}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000100	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000550	.000200	0.	.....	
4,000	20,000	.000700	.000150	0.	.....	
5,000	25,000	.000850	.000150	0.	.....	
6,000	30,000	.001000	.000150	0.	.....	
7,000	35,000	.001150	.000150	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
8,200	41,000	.001350	.000050	.....	.....	
8,400	42,000	.001400	.000050	.....	.....	
8,600	43,000	.001450	.000050	.....	.....	
8,800	44,000	.001500	.000050	.....	.....	
9,000	45,000	.001500	0.	0.	.....	
9,200	46,000	.001550	.000050	.....	.....	
9,400	47,000	.001550	0.			Elastic limit.
9,600	48,000	.001600	.000050	.....	.....	
9,800	49,000	.001650	.000050	.....	.....	
10,000	50,000	.002900	.001250	.....	.....	
10,200	51,000	.004250	.001350	.....	.....	
10,400	52,000	.005000	.000750	.....	.....	
10,600	53,000	.006000	.001000	.....	.....	
10,800	54,000	.007000	.001000	.....	.....	
11,000	55,000	.007900	.000900	.....	.....	
11,200	56,000	.008750	.000850	.....	.....	
11,400	57,000	.009750	.001000	.....	.....	
11,600	58,000	.010500	.000750	.....	.....	
11,800	59,000	.011900	.001400	.....	.....	
12,000	60,000	.012750	.000850	.....	.....	
12,400	62,000	.014750	.002000			Tensile strength.
12,800	64,000	.017000	.002250	.....	.....	
13,200	66,000	.019250	.002250	.....	.....	
13,600	68,000	.021750	.002500	.....	.....	
14,000	70,000	.025000	.003250	.....	.....	
14,400	72,000	.028500	.003500	.....	.....	
14,800	74,000	.031500	.003000	.....	.....	
15,200	76,000	.035000	.003500	.....	.....	
15,600	78,000	.039250	.004250	.....	.....	
16,000	80,000	.044000	.004750	.....	.....	
16,400	82,000	.051500	.007500	.....	.....	
16,800	84,000	.0650	.0135	.....	.....	
17,200	86,000	.0750	.0100	.....	.....	
17,600	88,000	.0900	.0150	.....	.....	
17,900	89,500	.1400	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	89,500
Elastic limit per square inch of original section.....	do...	49,000
Elongation per inch after rupture.....	inch..	0.2650
Elongation per inch under strain at elastic limit.....	do...	.001650
Reduction in diameter at point of rupture.....	do...	.165
Reduction in area after rupture, per centum of original section.....		54.6
Position of rupture.....	"8 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".39", ".14	

No. 2339.

Marks, $\frac{8}{B} \frac{R_1}{L_{10}} \frac{T}{I}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000100	.000100	0.	.....	
2,000	10,000	.000250	.000150	0.	.....	
3,000	15,000	.000400	.000150	0.	.....	
4,000	20,000	.000500	.000100	0.	.....	
5,000	25,000	.000650	.000150	0.	.....	
6,000	30,000	.000850	.000200	0.	.....	
7,000	35,000	.001000	.000150	0.	.....	
8,000	40,000	.001150	.000150	0.	.....	
9,000	45,000	.001400	.000250	.....	.....	
9,200	46,000	.001450	.000050	.....	.....	Elastic limit.
9,400	47,000	.002600	.001150	.....	.....	
9,600	48,000	.003000	.000400	.....	.....	
9,800	49,000	.004150	.001150	.....	.....	
10,000	50,000	.006000	.001850	.....	.....	
10,200	51,000	.007000	.001000	.....	.....	
10,400	52,000	.008000	.001000	.....	.....	
10,600	53,000	.009150	.001150	.....	.....	
10,800	54,000	.010000	.000850	.....	.....	
11,000	55,000	.011000	.001000	.....	.....	
11,200	56,000	.012000	.001000	.....	.....	
11,400	57,000	.013250	.001250	.....	.....	
11,600	58,000	.014600	.001350	.....	.....	
11,800	59,000	.015700	.001100	.....	.....	
12,000	60,000	.017000	.001300	.....	.....	
12,400	62,000	.019750	.002750	.....	.....	
12,800	64,000	.022500	.002750	.....	.....	
13,200	66,000	.025500	.003000	.....	.....	
13,600	68,000	.029000	.003550	.....	.....	
14,000	70,000	.033000	.004000	.....	.....	
14,400	72,000	.037500	.004500	.....	.....	
14,800	74,000	.043000	.005500	.....	.....	
15,200	76,000	.048500	.005500	.....	.....	
15,600	78,000	.059000	.010500	.....	.....	
16,000	80,000	.0650	.0060	.....	.....	
16,400	82,000	.0850	.0200	.....	.....	
16,800	84,000	.1150	.0300	.....	.....	
16,880	84,400	.1500	.0350	.....	.....	Tensile strength.

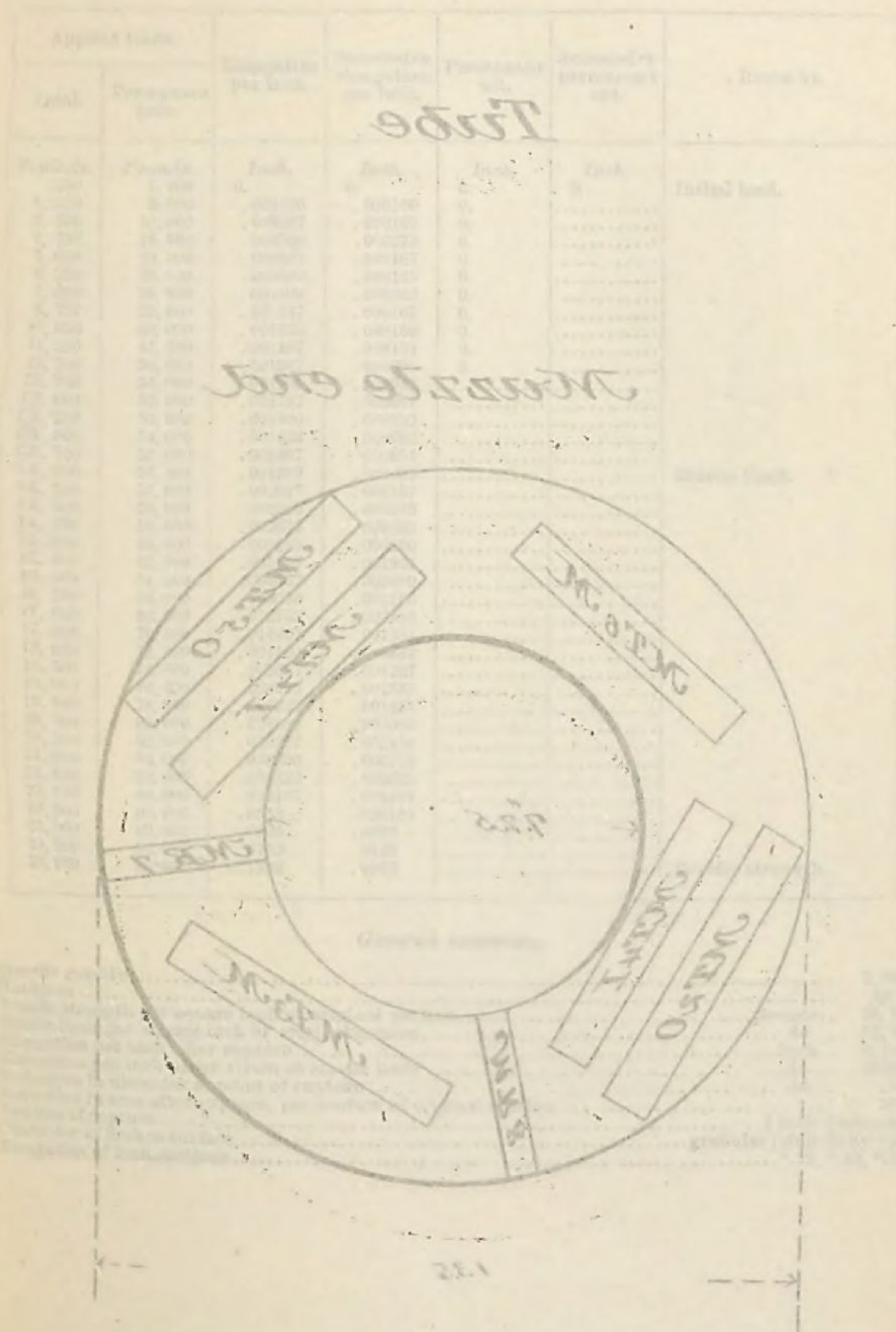
General summary.

Tensile strength per square inch of original section.....	pounds..	84,400
Elastic limit per square inch of original section.....	do...	46,000
Elongation per inch after rupture	inch..	0.2700
Elongation per inch under strain at elastic limit.....	do...	.001450
Reduction in diameter at point of rupture	do...	.185
Reduction in area after rupture, per centum of original section.....		59.8
Position of rupture	".8 from neck	
Character of broken surface.....	silky	
Elongation of inch sections	".41, ".13	

TABLE No. 232

8" Steel B.L. Rifle No. 1

Weight of gun, 25 pounds

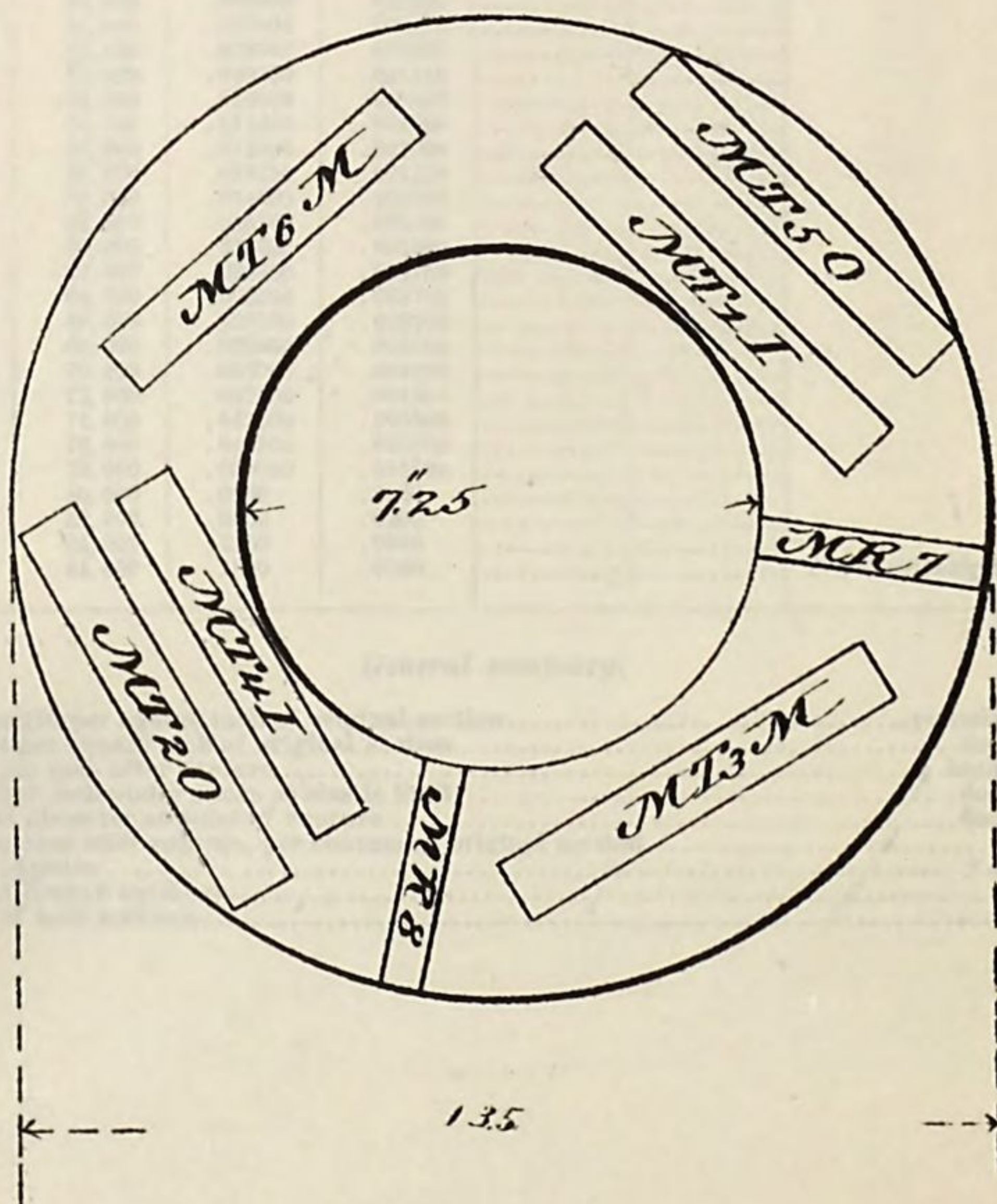


H Ex 31 49 5

8" Steel B. L. Rifle No. 1.

Tube

Muzzle end



H Ex 3/ 49 2

No. 2332.

Marks, $\frac{8}{M} \frac{R}{T} \frac{T}{I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000500	.000233	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000800	.000133	0.	.....	
7,500	30,000	.001000	.000200	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
10,000	40,000	.001333	.000166	0.	.....	
11,250	45,000	.001467	.000134	0.	.....	
12,500	50,000	.001667	.000200	0.	.....	
12,750	51,000	.001700	.000033	.....	.....	
13,000	52,000	.001767	.000067	.....	.....	
13,250	53,000	.001800	.000233			Elastic limit.
13,500	54,000	.001833	.000033	.....	.....	
13,750	55,000	.001867	.000034	.....	.....	
14,000	56,000	.001900	.000033	.....	.....	
14,250	57,000	.002067	.000167	.....	.....	
14,500	58,000	.002300	.000033	.....	.....	
14,750	59,000	.002633	.000333	.....	.....	
15,000	60,000	.003233	.000600	.....	.....	
15,500	62,000	.005167	.001934	.....	.....	
16,000	64,000	.008167	.003000	.....	.....	
16,500	66,000	.010333	.002166	.....	.....	
17,000	68,000	.012833	.002500	.....	.....	
17,500	70,000	.014667	.001834	.....	.....	
18,000	72,000	.021500	.006833			Tensile strength.
18,500	74,000	.022667	.001167	.....	.....	
19,000	76,000	.024000	.001333	.....	.....	
19,500	78,000	.025833	.001833	.....	.....	
20,000	80,000	.027833	.002000	.....	.....	
20,500	82,000	.030267	.002434	.....	.....	
21,000	84,000	.036000	.005733	.....	.....	
21,500	86,000	.039333	.003333	.....	.....	
22,000	88,000	.044167	.004834	.....	.....	
22,500	90,000	.0533	.009133	.....	.....	
23,000	92,000	.0600	.0067	.....	.....	
23,500	94,000	.0733	.0133	.....	.....	
23,980	95,920	.1200	.0467	.....	.....	

General summary.

Specific gravity.....	7.8561
Hardness.....	19.81
Tensile strength per square inch of original section.....	pounds.. 95,920
Elastic limit per square inch of original section.....	do... 56,000
Elongation per inch after rupture.....	inch.. 0.1667
Elongation per inch under strain at elastic limit.....	do... .001900
Reduction in diameter at point of rupture.....	do... .094
Reduction in area after rupture, per centum of original section.....	 30.6
Position of rupture.....	 $\frac{3}{4}$ inch from neck
Character of broken surface.....	 granular; dull flaky spot
Elongation of inch sections.....	 ".12, ".13, ".25*

No. 2333.

Marks, $\frac{8}{M} \frac{R_1}{T_2} \frac{T}{O}$

Diameter ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001100	.000200	0.	.....	
10,000	40,000	.001267	.000167	0.	.....	
11,250	45,000	.001467	.000200	.....	.....	
11,500	46,000	.001500	.000033			Elastic limit.
11,750	47,000	.001533	.000033	.....	.....	
12,000	48,000	.001567	.000034	.....	.....	
12,250	49,000	.002700	.001133	.....	.....	
12,500	50,000	.004133	.001433	.....	.....	
12,750	51,000	.004833	.000700	.....	.....	
13,000	52,000	.006033	.001200	.....	.....	
13,250	53,000	.006767	.000734	.....	.....	
13,500	54,000	.007800	.001033	.....	.....	
13,750	55,000	.008600	.000800	.....	.....	
14,000	56,000	.009667	.001067	.....	.....	
14,250	57,000	.010200	.000533	.....	.....	
14,500	58,000	.011200	.001000	.....	.....	
14,750	59,000	.012000	.000800	.....	.....	
15,000	60,000	.013167	.001167	.....	.....	
15,500	62,000	.015500	.002333	.....	.....	
16,000	64,000	.017667	.002167	.....	.....	
16,500	66,000	.019833	.002166	.....	.....	
17,000	68,000	.022333	.002500	.....	.....	
17,500	70,000	.025267	.002934	.....	.....	
18,000	72,000	.027833	.002566	.....	.....	
18,500	74,000	.031167	.003334	.....	.....	
19,000	76,000	.034667	.003500	.....	.....	
19,500	78,000	.038667	.004000	.....	.....	
20,000	80,000	.043667	.005000	.....	.....	
20,500	82,000	.0500	.006333	.....	.....	
21,000	84,000	.0600	.0100	.....	.....	
21,500	86,000	.0700	.0100	.....	.....	
22,000	88,000	.0800	.0100	.....	.....	
22,425	89,700	.1367	.0567			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	89,700
Elastic limit per square inch of original section	do ..	48,000
Elongation per inch after rupture	inch..	0.2333
Elongation per inch under strain at elastic limit	do ..	.001567
Reduction in diameter at point of rupture	do...	.154
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	".15 from middle of stem	
Character of broken surface	silky; interspersed with granulation	
Elongation of inch sections	".40*, ".13, ".17	

No. 2334.

Marks, $\frac{8 R_1 T}{M T_3 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
10,000	40,000	.001367	.000200	.000033	.000033	
11,250	45,000	.001567	.000200	.....	.....	
11,500	46,000	.001600	.000033			Elastic limit.
11,750	47,000	.001667	.000067	.....	.....	
12,000	48,000	.002400	.000733	.....	.....	
12,250	49,000	.004000	.001600	.....	.....	
12,500	50,000	.005000	.001000	.....	.....	
12,750	51,000	.005700	.000700	.....	.....	
13,000	52,000	.006767	.001067	.....	.....	
13,250	53,000	.007600	.000833	.....	.....	
13,500	54,000	.008167	.000567	.....	.....	
13,750	55,000	.009033	.000866	.....	.....	
14,000	56,000	.010000	.000967	.....	.....	
14,250	57,000	.010667	.000667	.....	.....	
14,500	58,000	.011767	.001100	.....	.....	
14,750	59,000	.012667	.000900	.....	.....	
15,000	60,000	.013733	.001066	.....	.....	
15,500	62,000	.015667	.001934	.....	.....	
16,000	64,000	.018000	.002333	.....	.....	
16,500	66,000	.020000	.002000	.....	.....	
17,000	68,000	.022367	.002367	.....	.....	
17,500	70,000	.025267	.002900	.....	.....	
18,000	72,000	.027833	.002566	.....	.....	
18,500	74,000	.031000	.003167	.....	.....	
19,000	76,000	.034700	.003700	.....	.....	
19,500	78,000	.038667	.003967	.....	.....	
20,000	80,000	.043167	.004500	.....	.....	
20,500	82,000	.049000	.005833	.....	.....	
21,000	84,000	.056333	.007333	.....	.....	
21,500	86,000	.0633	.006967	.....	.....	
22,000	88,000	.0767	.0134	.....	.....	
22,500	90,000	.1000	.0233	.....	.....	
22,640	90,560	.1333	.0333			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	90,560
Elastic limit per square inch of original section.....	do...	47,000
Elongation per inch after rupture.....	inch..	0.1900
Elongation per inch under strain at elastic limit.....	do...	.001667
Reduction in diameter at point of rupture.....	do...	.084
Reduction in area after rupture, per centum of original section.....		27.6
Position of rupture.....	1".2 from neck	
Character of broken surface.....	granular; dull flaky spot	
Elongation of inch sections.....	".12, ".23*, ".22	

No. 639½.

Marks, $\begin{smallmatrix} 8 R_1 T \\ M T_4 I \end{smallmatrix}$

Length, 5".

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000233	.000133	0.	.....	
7,500	15,000	.000367	.000134	0.	.....	
10,000	20,000	.000533	.000166	0.	.....	
12,500	25,000	.000700	.000167	0.	.....	
15,000	30,000	.000867	.000167	0.	.....	
17,500	35,000	.001033	.000166	0.	.....	
20,000	40,000	.001200	.000167	0.	.....	
20,500	41,000	.001233	.000033	.....	.....	
21,000	42,000	.001267	.000034	.....	.....	
21,500	43,000	.001300	.000033	.....	.....	
22,000	44,000	.001333	.000033	.....	.....	
22,500	45,000	.001367	.000034	0.	.....	
23,000	46,000	.001400	.000033	.....	.....	
23,500	47,000	.001433	.000033	.....	.....	
24,000	48,000	.001467	.000034	.....	.....	
24,500	49,000	.001500	.000033	.....	.....	
25,000	50,000	.001533	.000033	.....	.....	
25,500	51,000	.001567	.000034	.....	.....	
26,000	52,000	.001633	.000066	.....	.....	
26,500	53,000	.001667	.000034	.....	.....	
27,000	54,000	.001700	.000033	.....	.....	
27,500	55,000	.001700	0.			Elastic limit.
28,000	56,000	.001767	.000067	.....	.....	
28,500	57,000	.001900	.000133	.....	.....	
29,000	58,000	.002167	.000267	.....	.....	
29,500	59,000	.002600	.000433	.....	.....	
30,000	60,000	.003400	.000800	.....	.....	
30,500	61,000	.004267	.000867	.....	.....	
31,000	62,000	.005300	.001033			Ultimate strength.
41,780	83,560	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 56,000
 Compression per inch under stress at elastic limit inch.. 0.001767
 Ultimate strength per square inch of original section pounds.. 83,560
 Manner of failure triple flexure

No. 640.

Marks, $\frac{8}{M} R_1 T$

Length, 4'' .995.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000233	.000133	0.	.....	
7,500	15,000	.000400	.000167	0.	.....	
10,000	20,000	.000567	.000167	0.	.....	
12,500	25,000	.000733	.000166	0.	.....	
15,000	30,000	.000933	.000200	0.	.....	
17,500	35,000	.001100	.000167	.000033	.000033	
20,000	40,000	.001300	.000200	.000067	.000034	
22,500	45,000	.001467	.000167	.000067	0.	
25,000	50,000	.001667	.000200	.000100	.000033	
25,500	51,000	.001700	.000033	.....	.....	
26,000	52,000	.001767	.000067			Elastic limit.
26,500	53,000	.002300	.000533	.....	.....	
27,000	54,000	.004200	.001900	.....	.....	
27,500	55,000	.005667	.001467	.....	.....	
28,000	56,000	.006700	.001033			Ultimate strength.
43,650	87,300	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 52,000
 Compression per inch under stress at elastic limit inch.. 0.001767
 Ultimate strength per square inch of original section pounds.. 87,300
 Manner of failure triple flexure

No. 641.

Marks, $\begin{smallmatrix} 8 R_1 T \\ M T_6 M \end{smallmatrix}$

Length, 5".001.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000067	.000067	0.	.....	
5,000	10,000	.000200	.000133	0.	.....	
7,500	15,000	.000300	.000100	0.	.....	
10,000	20,000	.000500	.000200	0.	.....	
12,500	25,000	.000667	.000167	0.	.....	
15,000	30,000	.000833	.000166	0.	.....	
17,500	35,000	.001000	.000167	0.	.....	
20,000	40,000	.001167	.000167	0.	.....	
22,500	45,000	.001367	.000200	0.	.....	
25,000	50,000	.001600	.000233	.000033	.000033	
25,500	51,000	.001633	.000033			Elastic limit.
26,000	52,000	.001533	— .000100	.....	.....	
26,500	53,000	.001500	— .000033	.....	.....	
27,000	54,000	.001733	.000233	.....	.....	
27,500	55,000	.002200	.000467	.....	.....	
28,000	56,000	.002933	.000733	.....	.....	
28,500	57,000	.003700	.000767			Ultimate strength.
29,000	58,000	.004533	.000833	.....	.....	
41,900	83,800	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 51,000
 Compression per inch under stress at elastic limitinch.. 0.001633
 Ultimate strength per square inch of original sectionpounds.. 83,800
 Manner of failuretriple flexure

No. 644.

Marks, $\frac{8}{M} R_1 T$

Length, 3".075.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000700	.000150	0.	.....	
15,000	30,000	.000850	.000150	0.	.....	
17,500	35,000	.001050	.000200	0.	.....	
20,000	40,000	.001250	.000200	0.	.....	
22,500	45,000	.001450	.000200	0.	.....	
25,000	50,000	.001650	.000200	0.	.....	
25,500	51,000	.001700	.000050			Elastic limit.
26,000	52,000	.002500	.000800	.....	.....	
26,500	53,000	.003400	.000900	.....	.....	
27,000	54,000	.004400	.001000	.....	.....	
27,500	55,000	.005250	.000850	.....	.....	
28,000	56,000	.006000	.000750			Test discontinued.
50,000	100,000	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 51,000
 Compression per inch under stress at elastic limit..... inch.. 0.001700
 Manner of failure..... specimen permanently shortened to 2".92

No. 645.

Marks, $\frac{8 R_1 T}{M R_8}$

Length, 3".070.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000250	.000150	0.	.....	
7,500	15,000	.000400	.000150	0.	.....	
10,000	20,000	.000550	.000150	0.	.....	
12,500	25,000	.000750	.000200	0.	.....	
15,000	30,000	.000950	.000200	0.	.....	
17,500	35,000	.001150	.000200	0.	.....	
20,000	40,000	.001350	.000200	0.	.....	
22,500	45,000	.001500	.000150	0.	.....	
23,000	46,000	.001550	.000050	.....	.....	
23,500	47,000	.001550	0.	.....	.....	
24,000	48,000	.001600	.000050	.....	.....	
24,500	49,000	.001700	.000100			Elastic limit.
25,000	50,000	.002000	.000300	.....	.....	
25,500	51,000	.003100	.001100	.....	.....	
26,000	52,000	.004000	.000900	.....	.....	
26,500	53,000	.005000	.001000	.....	.....	
27,000	54,000	.006200	.001200			Test discontinued.
27,500	55,000	.007100	.000900	.....	.....	
28,000	56,000	.007950	.000850	.....	.....	
50,000	100,000	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original sectionpounds.. 49,000
 Compression per inch under stress at elastic limit.....inch.. 0.001700
 Manner of failure.....specimen permanently shortened to 2".90

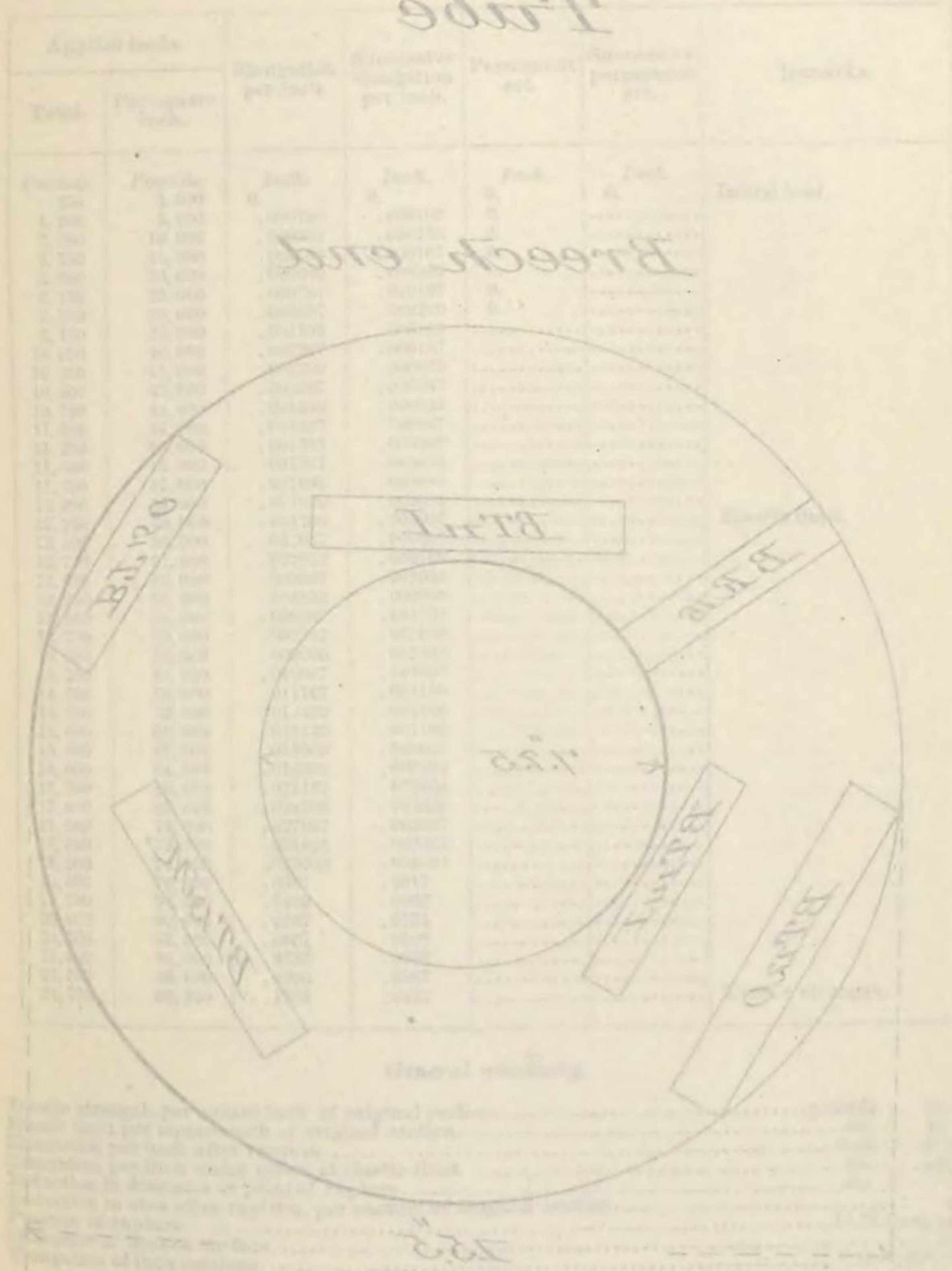
8" Steel B. E. Rifle No. 1.

Stock, 1/2" T₁₀

Diameter, 5.64

Sectional area, 25 square inch.

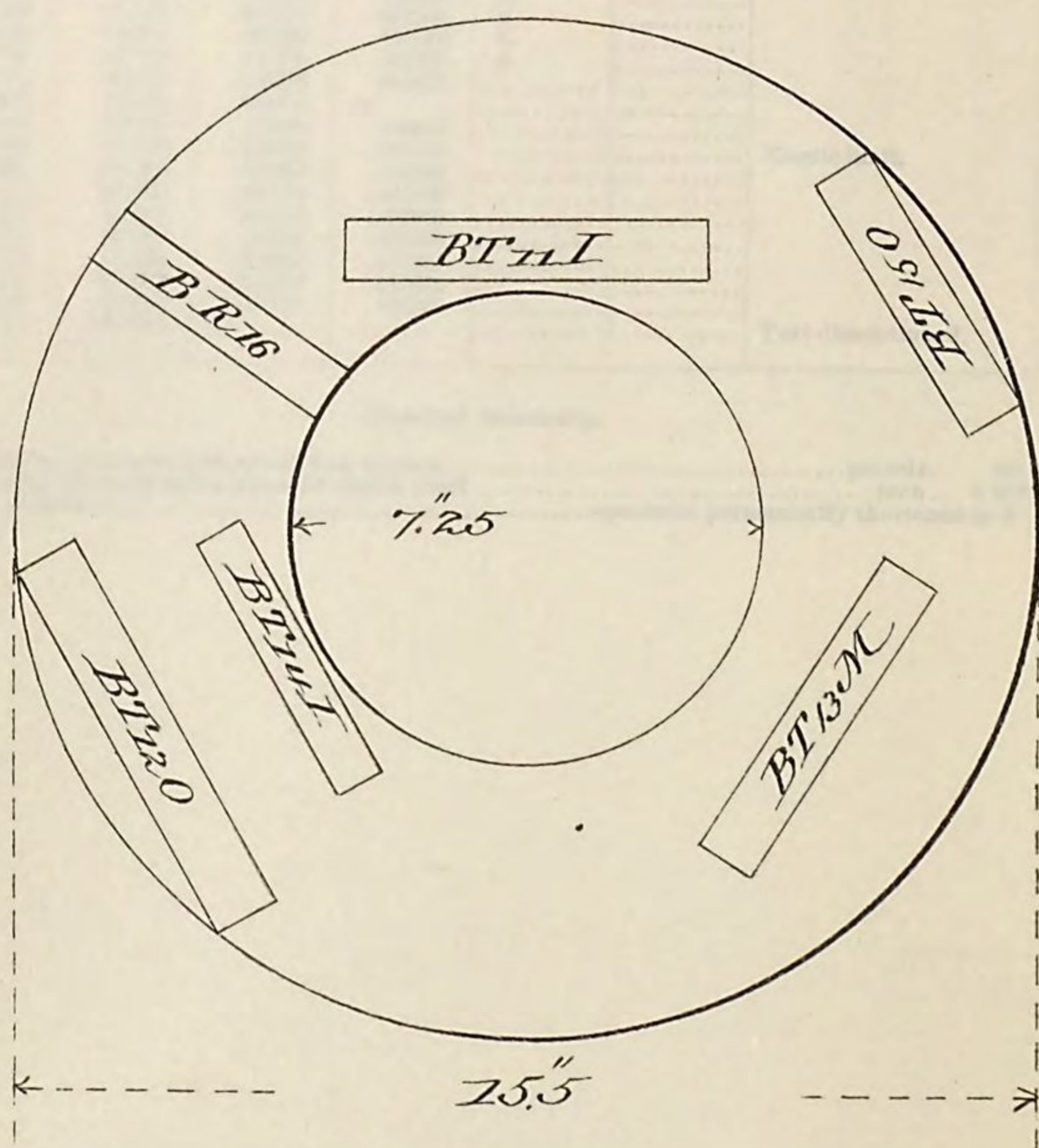
Tube



8" Steel B. L. Rifle No. 1.

Tube

Breech end



H Ex 3/ 49 2

[Specimens from second slice of tube after retreatment.]

No. 2564.

Marks, $\frac{8 R_1 T}{B T_{II} I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load,
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000600	.000200	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000967	.000200	0.	.....	
8,750	35,000	.001100	.000133	.....	.....	
10,000	40,000	.001267	.000167	.....	.....	
10,250	41,000	.001300	.000033	.....	.....	
10,500	42,000	.001367	.000067	.....	.....	
10,750	43,000	.001400	.000033	.....	.....	
11,000	44,000	.001467	.000067	.....	.....	
11,250	45,000	.001533	.000066	.....	.....	
11,500	46,000	.001567	.000034	.....	.....	
11,750	47,000	.001600	.000033	.....	.....	
12,000	48,000	.001633	.000033	.....	.....	
12,250	49,000	.001700	.000067	.....	.....	Elastic limit.
12,500	50,000	.002067	.000367	.....	.....	
12,750	51,000	.002833	.000766	.....	.....	
13,000	52,000	.003867	.001034	.....	.....	
13,250	53,000	.004833	.000966	.....	.....	
13,500	54,000	.006367	.001534	.....	.....	
13,750	55,000	.007367	.001000	.....	.....	
14,000	56,000	.009000	.001633	.....	.....	
14,250	57,000	.010067	.001067	.....	.....	
14,500	58,000	.011167	.001100	.....	.....	
14,750	59,000	.012333	.001166	.....	.....	
15,000	60,000	.013433	.001100	.....	.....	
15,500	62,000	.015500	.002067	.....	.....	
16,000	64,000	.018333	.002833	.....	.....	
16,500	66,000	.021167	.002834	.....	.....	
17,000	68,000	.024000	.002833	.....	.....	
17,500	70,000	.027067	.003067	.....	.....	
18,000	72,000	.031000	.003933	.....	.....	
18,500	74,000	.035000	.004000	.....	.....	
19,000	76,000	.0367	.0017	.....	.....	
19,500	78,000	.0433	.0066	.....	.....	
20,000	80,000	.0567	.0134	.....	.....	
20,500	82,000	.0667	.0100	.....	.....	
21,000	84,000	.0733	.0066	.....	.....	
21,500	86,000	.0900	.0167	.....	.....	
21,710	86,840	.1333	.0433	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	86,840
Elastic limit per square inch of original section.....	do...	49,000
Elongation per inch after rupture.....	inch..	0.2333
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	1".75 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".18, ".40*, ".12	

No. 2565.

Marks, $\frac{8}{B} R_1 T$
 $\frac{12}{O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000300	.000200	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001100	.000133	.....	.....	
10,000	40,000	.001333	.000233	.....	.....	
10,250	41,000	.001333	0.	.....	.....	
10,500	42,000	.001367	.000034	.....	.....	
10,750	43,000	.001400	.000033	.....	.....	
11,000	44,000	.001433	.000033	.....	.....	
11,250	45,000	.001500	.000067	.....	.....	
11,500	46,000	.001533	.000033	.....	.....	
11,750	47,000	.001567	.000034	.....	.....	
12,000	48,000	.001633	.000066	.....	.....	
12,250	49,000	.001667	.000034	.....	.....	
12,500	50,000	.001700	.000033			Elastic limit.
12,750	51,000	.001767	.000067	.....	.....	
13,000	52,000	.002567	.000800	.....	.....	
13,250	53,000	.003500	.000933	.....	.....	
13,500	54,000	.004733	.001233	.....	.....	
13,750	55,000	.006200	.001467	.....	.....	
14,000	56,000	.007167	.000967	.....	.....	
14,250	57,000	.008100	.000933	.....	.....	
14,500	58,000	.009167	.001067	.....	.....	
14,750	59,000	.010167	.001000	.....	.....	
15,000	60,000	.011167	.001000	.....	.....	
15,500	62,000	.013233	.002066	.....	.....	
16,000	64,000	.015667	.002434	.....	.....	
16,500	66,000	.018000	.002333	.....	.....	
17,000	68,000	.020167	.002167	.....	.....	
17,500	70,000	.023100	.002933	.....	.....	
18,000	72,000	.025667	.002567	.....	.....	
18,500	74,000	.029000	.003333	.....	.....	
19,000	76,000	.032333	.003333	.....	.....	
19,500	78,000	.035733	.003400	.....	.....	
20,000	80,000	.0400	.004267			Tensile strength.
20,500	82,000	.0467	.0067	.....	.....	
21,000	84,000	.0567	.0100	.....	.....	
21,500	86,000	.0633	.0066	.....	.....	
22,000	88,000	.0733	.0100	.....	.....	
22,500	90,000	.0967	.0234	.....	.....	
22,600	90,400	.1267	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	90,400
Elastic limit per square inch of original section.....	do...	51,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do...	.001767
Reduction in diameter at point of rupture.....	do...	.174
Reduction in area after rupture, per centum of original section.....		52.2
Position of rupture.....	1".30 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".09, ".31*, ".20	

No. 2566.

Marks, $\begin{smallmatrix} 8R_1T \\ BT_{13}M \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	.....	.....	
10,000	40,000	.001267	.000167	.....	.....	
11,250	45,000	.001433	.000166	.....	.....	
11,500	46,000	.001467	.000034	.....	.....	Elastic limit.
11,750	47,000	.001600	.000133	.....	.....	
12,000	48,000	.003267	.001667	.....	.....	
12,250	49,000	.004500	.001233	.....	.....	
12,500	50,000	.005400	.000900	.....	.....	
12,750	51,000	.006467	.001067	.....	.....	
13,000	52,000	.007633	.001166	.....	.....	
13,250	53,000	.008467	.000834	.....	.....	
13,500	54,000	.009667	.001200	.....	.....	
13,750	55,000	.010567	.000900	.....	.....	
14,000	56,000	.011600	.001033	.....	.....	
14,250	57,000	.012667	.001067	.....	.....	
14,500	58,000	.013667	.001000	.....	.....	
14,750	59,000	.014533	.000866	.....	.....	
15,000	60,000	.015800	.001267	.....	.....	
15,500	62,000	.018667	.002867	.....	.....	
16,000	64,000	.021000	.002333	.....	.....	
16,500	66,000	.023833	.002833	.....	.....	
17,000	68,000	.026667	.002834	.....	.....	
17,500	70,000	.030000	.003333	.....	.....	
18,000	72,000	.033733	.003733	.....	.....	
18,500	74,000	.0367	.002967	.....	.....	
19,000	76,000	.0400	.0033	.....	.....	
19,500	78,000	.0467	.0067	.....	.....	
20,000	80,000	.0567	.0100	.....	.....	
20,500	82,000	.0667	.0100	.....	.....	
21,000	84,000	.0767	.0100	.....	.....	
21,500	86,000	.1067	.0300	.....	.....	
21,550	86,200	.1367	.0300	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	86,200
Elastic limit per square inch of original section	do...	46,000
Elongation per inch after rupture	inch..	0.2100
Elongation per inch under strain at elastic limit	do...	.001467
Reduction in diameter at point of rupture	do...	.174
Reduction in area after rupture, per centum of original section		52.2
Position of rupture	1".50 from neck	
Character of broken surface	silky	
Elongation of inch sections	".15, ".36*, ".12	

H. Ex. 31—37

No. 662.

Marks, $\frac{8 R_1 T}{B T_{14} I}$
Length, 4'' .494.
Diameter, '' .799.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000267	.000167	0.	.....	
7,500	15,000	.000433	.000166	0.	.....	
10,000	20,000	.000600	.000167	0.	.....	
12,500	25,000	.000767	.000167	0.	.....	
15,000	30,000	.000933	.000166	0.	.....	
17,500	35,000	.001100	.000167	.000033	.000033	
20,000	40,000	.001300	.000200	.....	.....	
20,500	41,000	.001333	.000033	.....	.....	
21,000	42,000	.001400	.000067	.....	.....	
21,500	43,000	.001433	.000033	.....	.....	
22,000	44,000	.001467	.000034	.....	.....	
22,500	45,000	.001500	.000033	.....	.....	
23,000	46,000	.001533	.000033	.....	.....	
23,500	47,000	.001567	.000034	.....	.....	
24,000	48,000	.001667	.000100	.....	.....	
24,500	49,000	.001700	.000033			Elastic limit.
25,000	50,000	.002333	.000633	.....	.....	
25,500	51,000	.003400	.001067	.....	.....	
26,000	52,000	.004633	.001233	.....	.....	
26,500	53,000	.005233	.000600			Ultimate strength.
27,000	54,000	.006333	.001100	.....	.....	
42,880	85,760	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 49,000
Compression per inch under stress at elastic limitinch.. 0.001700
Ultimate strength per square inch of original sectionpounds.. 85,760
Manner of failuretriple flexure

No. 663.

Marks, $\frac{8 R_1 T}{B T_{15} O}$

Length, 4".503.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000133	.000133	0.	.....	
5,000	10,000	.000300	.000167	0.	.....	
7,500	15,000	.000467	.000167	0.	.....	
10,000	20,000	.000633	.000166	0.	.....	
12,500	25,000	.000800	.000167	0.	.....	
15,000	30,000	.001000	.000200	0.	.....	
17,500	35,000	.001200	.000200	.000033	.000033	
20,000	40,000	.001367	.000167	.....	.....	
20,500	41,000	.001400	.000033	.....	.....	
21,000	42,000	.001433	.000033	.....	.....	
21,500	43,000	.001467	.000034	.....	.....	
22,000	44,000	.001500	.000033	.....	.....	
22,500	45,000	.001533	.000033	.....	.....	
23,000	46,000	.001600	.000067	.....	.....	
23,500	47,000	.001633	.000033	.....	.....	
24,000	48,000	.001667	.000034	.....	.....	
24,500	49,000	.001700	.000033			Elastic limit.
25,000	50,000	.001767	.000067	.....	.....	
25,500	51,000	.002500	.000733	.....	.....	
26,000	52,000	.003267	.000767	.....	.....	
26,500	53,000	.003900	.000633			Ultimate strength.
27,000	54,000	.004667	.000767	.....	.....	
46,700	93,400	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 50,000
 Compression per inch under stress at elastic limit.....inch.. 0.001767
 Ultimate strength per square inch of original sectionpounds.. 93,400
 Manner of failuretriple flexure

No. 664.

Marks, $\frac{8 R_1 T}{B R_{16}}$

Length, 4".004.

Diameter, ".799.

Sectional area, .50 square inch.

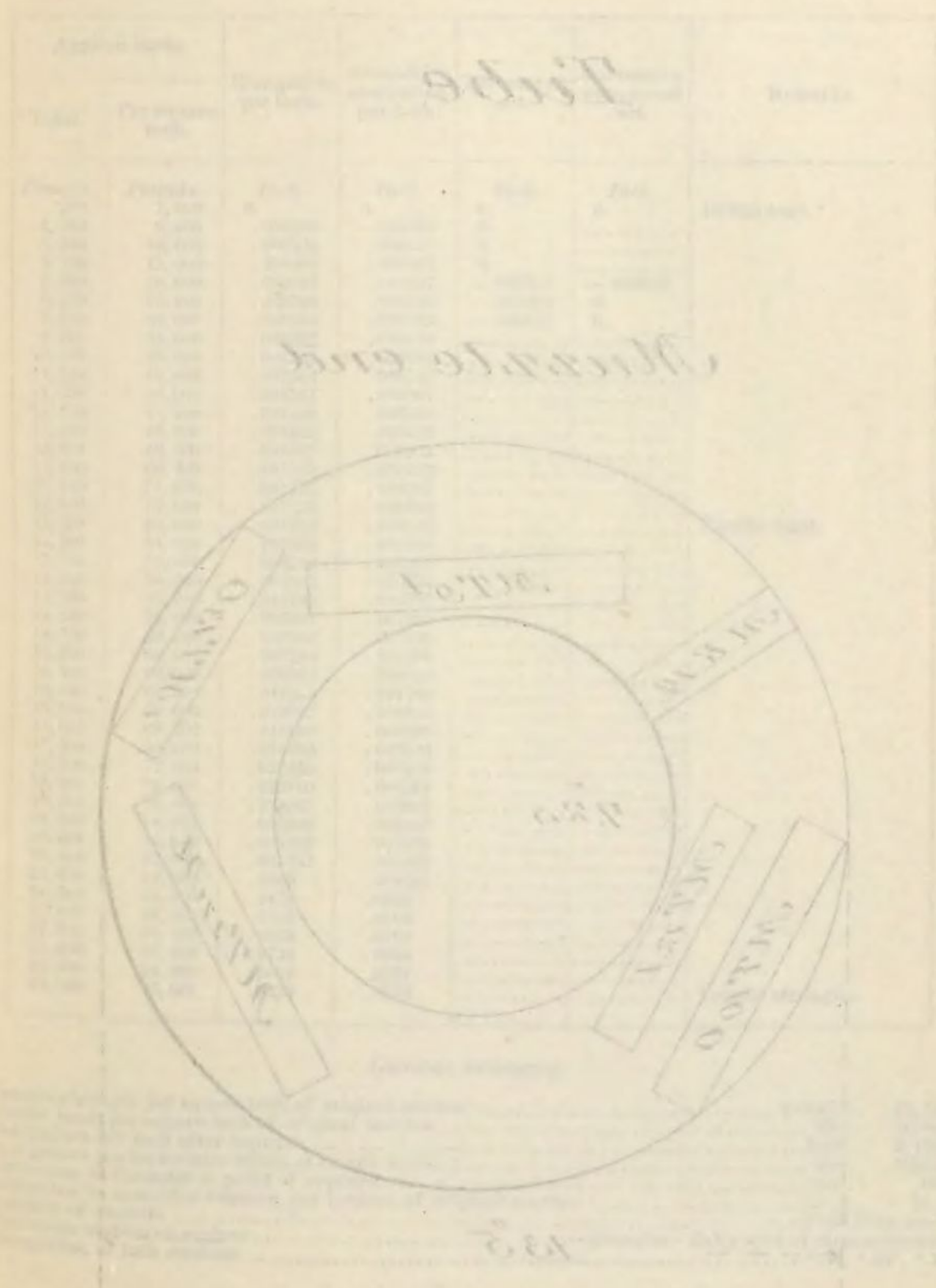
Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000150	.000150	0.	.....	
5,000	10,000	.000400	.000250	0.	.....	
7,500	15,000	.000600	.000200	0.	.....	
10,000	20,000	.000700	.000100	0.	.....	
12,500	25,000	.000850	.000150	0.	.....	
15,000	30,000	.001050	.000200	0.	.....	
17,500	35,000	.001200	.000150	0.	.....	
20,000	40,000	.001350	.000150	.....	.....	
20,500	41,000	.001400	.000050	.....	.....	
21,000	42,000	.001400	0.	.....	.....	
21,500	43,000	.001450	.000050	.....	.....	
22,000	44,000	.001500	.000050	.....	.....	
22,500	45,000	.001550	.000050	.....	.....	
23,000	46,000	.001650	.000100	.....	.....	
23,500	47,000	.001700	.000050			Elastic limit.
24,000	48,000	.001850	.000150	.....	.....	
24,500	49,000	.003000	.001150	.....	.....	
25,000	50,000	.004000	.001000	.....	.....	
25,500	51,000	.004900	.000900	.....	.....	
26,000	52,000	.005750	.000850			Ultimate strength.
48,520	97,040	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 47,000
 Compression per inch under stress at elastic limit.....inch.. 0.001700
 Ultimate strength per square inch of original section.....pounds.. 97,040
 Manner of failuretriple flexure

1857

8" Steel B.L. Rifle No. 7

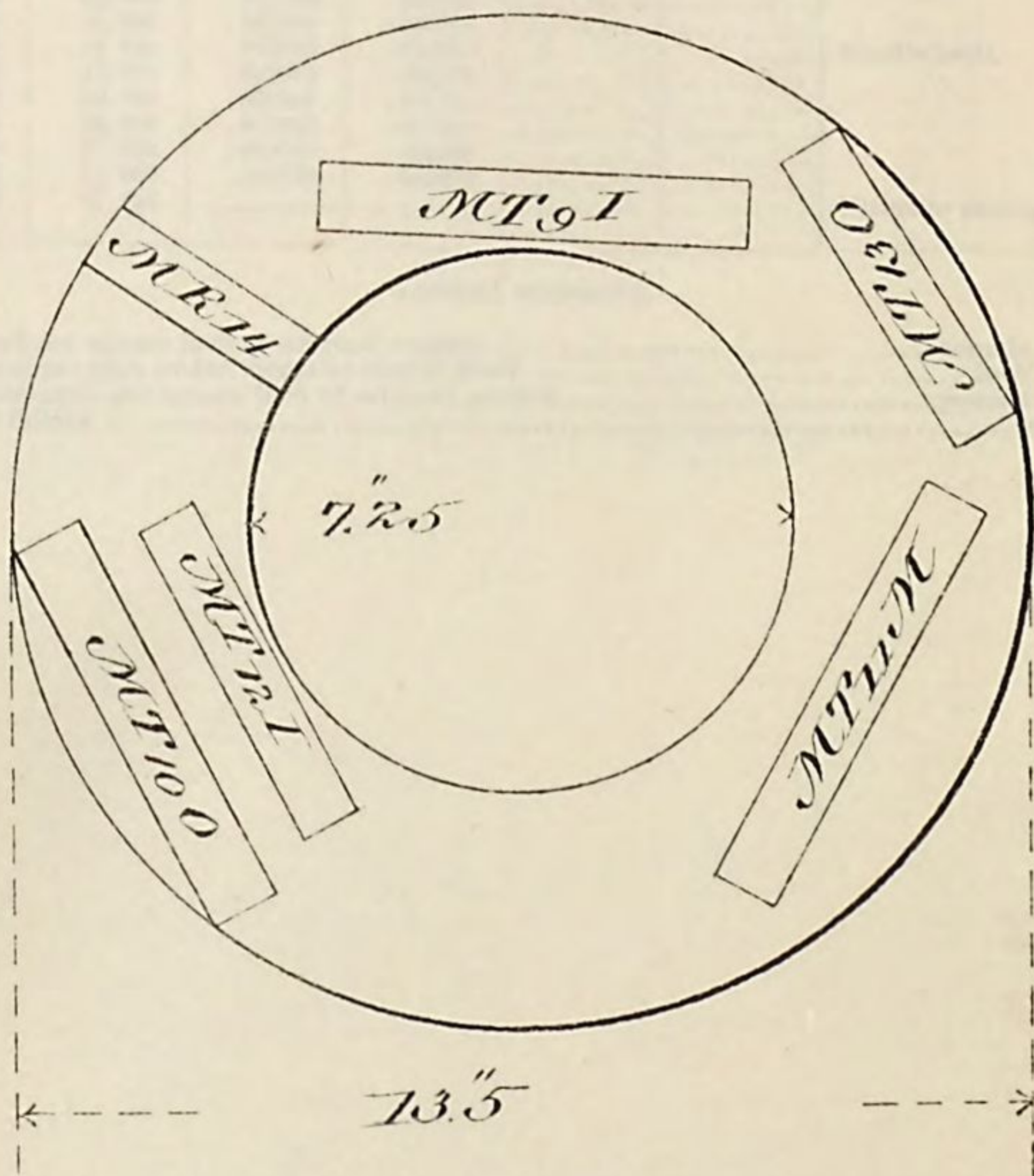


H Ex 31 49 5

8" Steel B. L. Rifle No. 1.

Tube

Muzzle end



H Ex 3 / 49 2

[Specimens from second slice of tube after retreatment.]

No. 2567.

Marks, $\frac{8 R_1 T}{M T_2 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	-.000033	-.000033	
6,250	25,000	.000700	.000133	-.000033	0.	
7,500	30,000	.000833	.000133	-.000033	0.	
8,750	35,000	.000967	.000134	.....	.....	
10,000	40,000	.001133	.000166	.....	.....	
11,250	45,000	.001300	.000167	.....	.....	
11,500	46,000	.001367	.000067			Elastic limit.
11,750	47,000	.001400	.000033	.....	.....	
12,000	48,000	.001433	.000033	.....	.....	
12,250	49,000	.001467	.000034	.....	.....	
12,500	50,000	.001500	.000033	.....	.....	
12,750	51,000	.001567	.000067	.....	.....	
13,000	52,000	.001633	.000066	.....	.....	
13,250	53,000	.001733	.000100	.....	.....	
13,500	54,000	.001933	.000200	.....	.....	
13,750	55,000	.002233	.000300	.....	.....	
14,000	56,000	.003067	.000834	.....	.....	
14,250	57,000	.004100	.001033	.....	.....	
14,500	58,000	.005467	.001367	.....	.....	
14,750	59,000	.006500	.001033	.....	.....	
15,000	60,000	.007700	.001200	.....	.....	
15,500	62,000	.009567	.001867	.....	.....	
16,000	64,000	.011333	.001766	.....	.....	
16,500	66,000	.013267	.001934	.....	.....	
17,000	68,000	.015667	.002400	.....	.....	
17,500	70,000	.018000	.002333	.....	.....	
18,000	72,000	.020433	.002433	.....	.....	
18,500	74,000	.022700	.002267	.....	.....	
19,000	76,000	.025367	.002667	.....	.....	
19,500	78,000	.028400	.003033	.....	.....	
20,000	80,000	.031333	.002933	.....	.....	
20,500	82,000	.035333	.004000	.....	.....	
21,000	84,000	.0400	.004667	.....	.....	
21,500	86,000	.0433	.0033	.....	.....	
22,000	88,000	.0533	.0100	.....	.....	
22,500	90,000	.0633	.0100	.....	.....	
23,000	92,000	.0733	.0100	.....	.....	
23,500	94,000	.1000	.0267			Tensile strength.
23,580	94,320	.1333	.0333	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	94,320
Elastic limit per square inch of original section.....	do...	53,000
Elongation per inch after rupture.....	inch..	0.1700
Elongation per inch under strain at elastic limit.....	do...	.001733
Reduction in diameter at point of rupture.....	do...	.064
Reduction in area after rupture, per centum of original section		21.4
Position of rupture		1".55 from neck
Character of broken surface	granular; flaky spot at circumference	
Elongation of inch sections.....		".14, ".22 ^a , ".15

No. 2568.

Marks, $\frac{8 R_1 T}{M T_{10} O}$
Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000300	.000200	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001167	.000200	.....	.....	
10,000	40,000	.001267	.000100	.....	.....	
11,250	45,000	.001467	.000200	.....	.....	
11,500	46,000	.001500	.000033	.....	.....	
11,750	47,000	.001533	.000033	.....	.....	
12,000	48,000	.001567	.000034	.....	.....	
12,250	49,000	.001600	.000033	.....	.....	
12,500	50,000	.001667	.000067	.....	.....	
12,750	51,000	.001733	.000066	.....	.....	
13,000	52,000	.001800	.000067	.....	.....	Elastic limit.
13,250	53,000	.002100	.000300	.....	.....	
13,500	54,000	.002833	.000733	.....	.....	
13,750	55,000	.003500	.000667	.....	.....	
14,000	56,000	.004767	.001267	.....	.....	
14,250	57,000	.005767	.001000	.....	.....	
14,500	58,000	.006933	.001166	.....	.....	
14,750	59,000	.007767	.000834	.....	.....	
15,000	60,000	.008800	.001033	.....	.....	
15,500	62,000	.010667	.001867	.....	.....	
16,000	64,000	.013000	.002333	.....	.....	
16,500	66,000	.014933	.001933	.....	.....	
17,000	68,000	.017000	.002067	.....	.....	
17,500	70,000	.018833	.001833	.....	.....	
18,000	72,000	.021333	.002500	.....	.....	
18,500	74,000	.024000	.002667	.....	.....	
19,000	76,000	.026667	.002667	.....	.....	
19,500	78,000	.029667	.003000	.....	.....	
20,000	80,000	.034000	.004333	.....	.....	
20,500	82,000	.0400	.0060	.....	.....	
21,000	84,000	.0433	.0033	.....	.....	
21,500	86,000	.0467	.0034	.....	.....	
22,000	88,000	.0567	.0100	.....	.....	
22,500	90,000	.0633	.0066	.....	.....	
23,000	92,000	.0767	.0134	.....	.....	
23,500	94,000	.1100	.0333	.....	.....	
23,520	94,080	.1333	.0233	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....pounds.. 94,080
 Elastic limit per square inch of original section.....do... 52,000
 Elongation per inch after rupture.....inch.. 0.1967
 Elongation per inch under strain at elastic limit.....do... .001800
 Reduction in diameter at point of rupture.....do... .184
 Reduction in area after rupture, per centum of original section..... 54.6
 Position of rupture..... 1 inch from neck
 Character of broken surface.....silky; trace of granulation
 Elongation of inch sections.....".10, ".15, ".34*

No. 2569.

Marks, $\frac{8 R_1 T}{M T_{11} M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000633	.000200	0.	.....	
6,250	25,000	.000833	.000200	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001133	.000133	.....	.....	
10,000	40,000	.001333	.000200	.....	.....	
11,250	45,000	.001467	.000134	.....	.....	
11,500	46,000	.001533	.000066	.....	.....	
11,750	47,000	.001567	.000034	.....	.....	
12,000	48,000	.001633	.000066	.....	.....	
12,250	49,000	.001667	.000034	.....	.....	
12,500	50,000	.001733	.000066	.....	.....	Elastic limit.
12,750	51,000	.002833	.001100	.....	.....	
13,000	52,000	.004700	.001867	.....	.....	
13,250	53,000	.005667	.000967	.....	.....	
13,500	54,000	.006467	.000800	.....	.....	
13,750	55,000	.007333	.000866	.....	.....	
14,000	56,000	.008233	.000900	.....	.....	
14,250	57,000	.009000	.000767	.....	.....	
14,500	58,000	.010167	.001167	.....	.....	
14,750	59,000	.010833	.000666	.....	.....	
15,000	60,000	.012033	.001200	.....	.....	
15,500	62,000	.013333	.001300	.....	.....	
16,000	64,000	.016500	.003167	.....	.....	
16,500	66,000	.018033	.001533	.....	.....	
17,000	68,000	.020000	.001967	.....	.....	
17,500	70,000	.023333	.003333	.....	.....	
18,000	72,000	.026333	.003000	.....	.....	
18,500	74,000	.029500	.003167	.....	.....	
19,000	76,000	.032500	.003000	.....	.....	
19,500	78,000	.035667	.003167	.....	.....	
20,000	80,000	.0400	.004333	.....	.....	
20,500	82,000	.0433	.0033	.....	.....	
21,000	84,000	.0533	.0100	.....	.....	
21,500	86,000	.0633	.0100	.....	.....	
22,000	88,000	.0700	.0067	.....	.....	
22,500	90,000	.0867	.0167	.....	.....	
22,900	91,600	.1400	.0533	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	91,600
Elastic limit per square inch of original section.....	do...	50,000
Elongation per inch after rupture.....	inch..	0.2133
Elongation per inch under strain at elastic limit.....	do...	.001733
Reduction in diameter at point of rupture.....	do...	.134
Reduction in area after rupture, per centum of original section.....		41.9
Position of rupture.....	1".55 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".11, ".35*, ".1	

No. 665.

Marks, ^{8 R₁ T}_{M T₁₂ I}
Length, 4''¹².506.
Diameter, ''¹².798.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000167	.000167	0.	.....	
5,000	10,000	.000300	.000133	0.	.....	
7,500	15,000	.000500	.000200	0.	.....	
10,000	20,000	.000667	.000167	0.	.....	
12,500	25,000	.000833	.000166	0.	.....	
15,000	30,000	.001000	.000167	0.	.....	
17,500	35,000	.001167	.000167	0.	.....	
20,000	40,000	.001333	.000166	0.	.....	
22,500	45,000	.001500	.000167	.....	.....	
25,000	50,000	.001667	.000167	.....	.....	
25,500	51,000	.001700	.000033	.....	.....	
26,000	52,000	.001733	.000033	.....	.....	
26,500	53,000	.001767	.000034	.....	.....	
27,000	54,000	.001800	.000033	.....	.....	
27,500	55,000	.001833	.000033	.....	.....	
28,000	56,000	.001867	.000034	.....	.....	
28,500	57,000	.001900	.000033			Elastic limit.
29,000	58,000	.001900	0.	.....	.....	
29,500	59,000	.001767	— .000133	.....	.....	
30,000	60,000	.001867	.000100			Ultimate strength.
30,500	61,000	.002567	.000700	.....	.....	
31,000	62,000	.003633	.001066	.....	.....	
47,300	94,600	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 57,000
Compression per inch under stress at elastic limit..... inch.. 0.001900
Ultimate strength per square inch of original section..... pounds.. 94,600
Manner of failure..... triple flexure

No. 666.

Marks, $\begin{smallmatrix} 8 R_1 T \\ M T_{13} O \end{smallmatrix}$

Length, 4".506.

Diameter, ".799.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000167	.000167	0.	-----	
5,000	10,000	.000333	.000166	0.	-----	
7,500	15,000	.000500	.000167	0.	-----	
10,000	20,000	.000667	.000167	0.	-----	
12,500	25,000	.000833	.000166	0.	-----	
15,000	30,000	.001000	.000167	0.	-----	
17,500	35,000	.001167	.000167	0.	-----	
20,000	40,000	.001333	.000166	0.	-----	
22,500	45,000	.001500	.000167	0.	-----	
25,000	50,000	.001667	.000167	0.	-----	
25,500	51,000	.001667	0.	-----	-----	
26,000	52,000	.001700	.000033	-----	-----	Elastic limit.
26,500	53,000	.001733	.000033	-----	-----	
27,000	54,000	.002667	.000934	-----	-----	
27,500	55,000	.003467	.000800	-----	-----	
28,000	56,000	.004533	.001066	-----	-----	Ultimate strength.
45,680	91,360	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original sectionpounds.. 53,000
 Compression per inch under stress at elastic limitinch.. 0.001733
 Ultimate strength per square inch of original sectionpounds.. 91,360
 Manner of failure.....triple flexure

No. 667.

Marks, $\frac{8 R_1 T}{M R_{14}}$
Length, 3'' .088.
Diameter, '' .709.
Sectional area, .395 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total:	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
395	1, 000	0.	0.	0.	0.	Initial load.
1, 975	5, 000	.000200	.000200	0.	.....	
3, 950	10, 000	.000450	.000250	0.	.....	
5, 925	15, 000	.000650	.000200	0.	.....	
7, 900	20, 000	.000800	.000150	0.	.....	
9, 875	25, 000	.001000	.000200	0.	.....	
11, 850	30, 000	.001150	.000150	0.	.....	
13, 825	35, 000	.001300	.000150	0.	.....	
15, 800	40, 000	.001500	.000200	.000100	.000100	
17, 775	45, 000	.001650	.000150	.....	.....	
19, 750	50, 000	.001850	.000200	.....	.....	
20, 145	51, 000	.001900	.000050	.....	.....	
20, 540	52, 000	.001950	.000050	.....	.....	
20, 935	53, 000	.002050	.000100			Elastic limit.
21, 330	54, 000	.002600	.000550	.....	.....	
21, 725	55, 000	.003900	.001300	.....	.....	
22, 120	56, 000	.005000	.001100			Ultimate strength.
44, 300	112, 250	.....	.....	.....	.....	

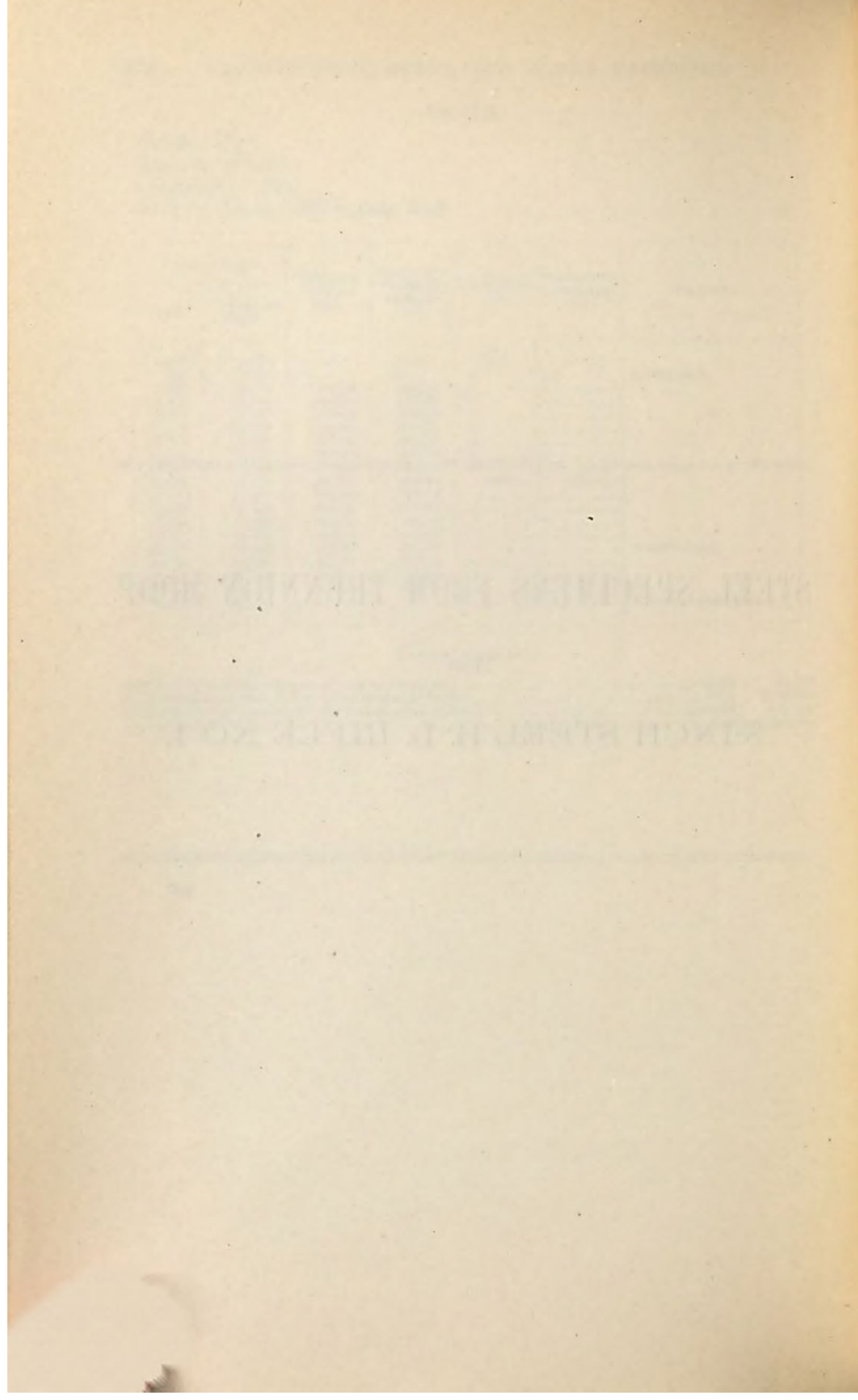
General summary.

Elastic limit per square inch of original section.....pounds.. 53, 000
Compression per inch under stress at elastic limitinch.. 0.002050
Ultimate strength per square inch of original section.....pounds.. 112, 250
Manner of failuretriple flexure

STEEL SPECIMENS FROM TRUNNION HOOP

FOR

8-INCH STEEL B. L. RIFLE NO 1.



STEEL SPECIMENS FROM TRUNNION HOOP FOR 8-INCH STEEL B. I.
RIFLE NO. 1.

No. 2403.

Marks, $\frac{1}{2}$ 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

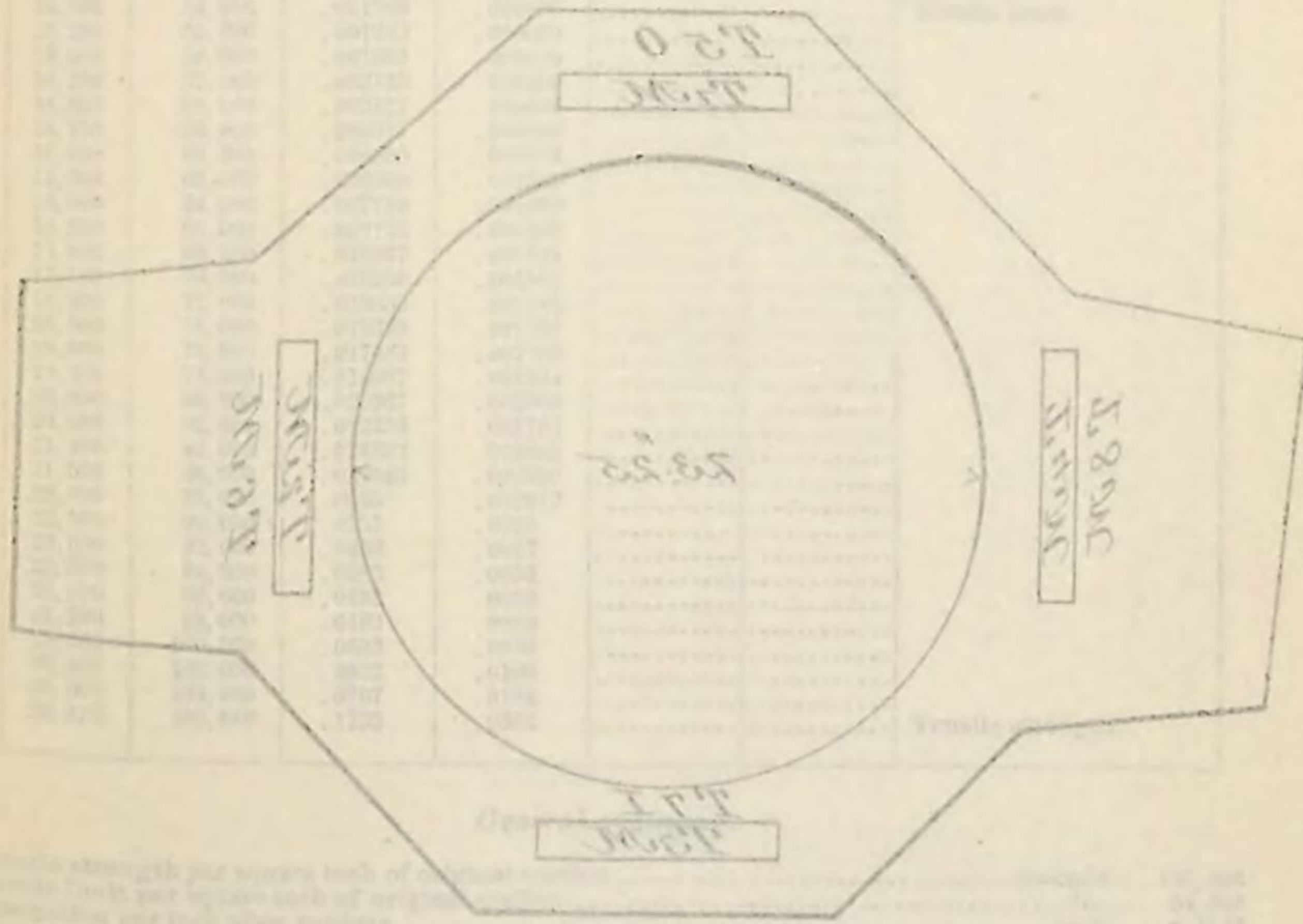
Diameter, $\frac{1}{2}$ 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Sectional area, $\frac{1}{2}$ 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

8" Steel B. I. Rifle No. 1

Applied loads		Elongation per inch	Decrease in diameter per inch	Permanent set	Remarks
Total	Percentage				
Pounds	Pounds	Per inch	Per inch	Per inch	
250	1.00				
500	2.00				
750	3.00				
1000	4.00				
1250	5.00				
1500	6.00				
1750	7.00				
2000	8.00				
2250	9.00				
2500	10.00				
2750	11.00				
3000	12.00				
3250	13.00				
3500	14.00				
3750	15.00				
4000	16.00				
4250	17.00				
4500	18.00				
4750	19.00				
5000	20.00				
5250	21.00				
5500	22.00				
5750	23.00				
6000	24.00				
6250	25.00				
6500	26.00				
6750	27.00				
7000	28.00				
7250	29.00				
7500	30.00				
7750	31.00				
8000	32.00				
8250	33.00				
8500	34.00				
8750	35.00				
9000	36.00				
9250	37.00				
9500	38.00				
9750	39.00				
10000	40.00				
10250	41.00				
10500	42.00				
10750	43.00				
11000	44.00				
11250	45.00				
11500	46.00				
11750	47.00				
12000	48.00				
12250	49.00				
12500	50.00				
12750	51.00				
13000	52.00				
13250	53.00				
13500	54.00				
13750	55.00				
14000	56.00				
14250	57.00				
14500	58.00				
14750	59.00				
15000	60.00				
15250	61.00				
15500	62.00				
15750	63.00				
16000	64.00				
16250	65.00				
16500	66.00				
16750	67.00				
17000	68.00				
17250	69.00				
17500	70.00				
17750	71.00				
18000	72.00				
18250	73.00				
18500	74.00				
18750	75.00				
19000	76.00				
19250	77.00				
19500	78.00				
19750	79.00				
20000	80.00				
20250	81.00				
20500	82.00				
20750	83.00				
21000	84.00				
21250	85.00				
21500	86.00				
21750	87.00				
22000	88.00				
22250	89.00				
22500	90.00				
22750	91.00				
23000	92.00				
23250	93.00				
23500	94.00				
23750	95.00				
24000	96.00				
24250	97.00				
24500	98.00				
24750	99.00				
25000	100.00				

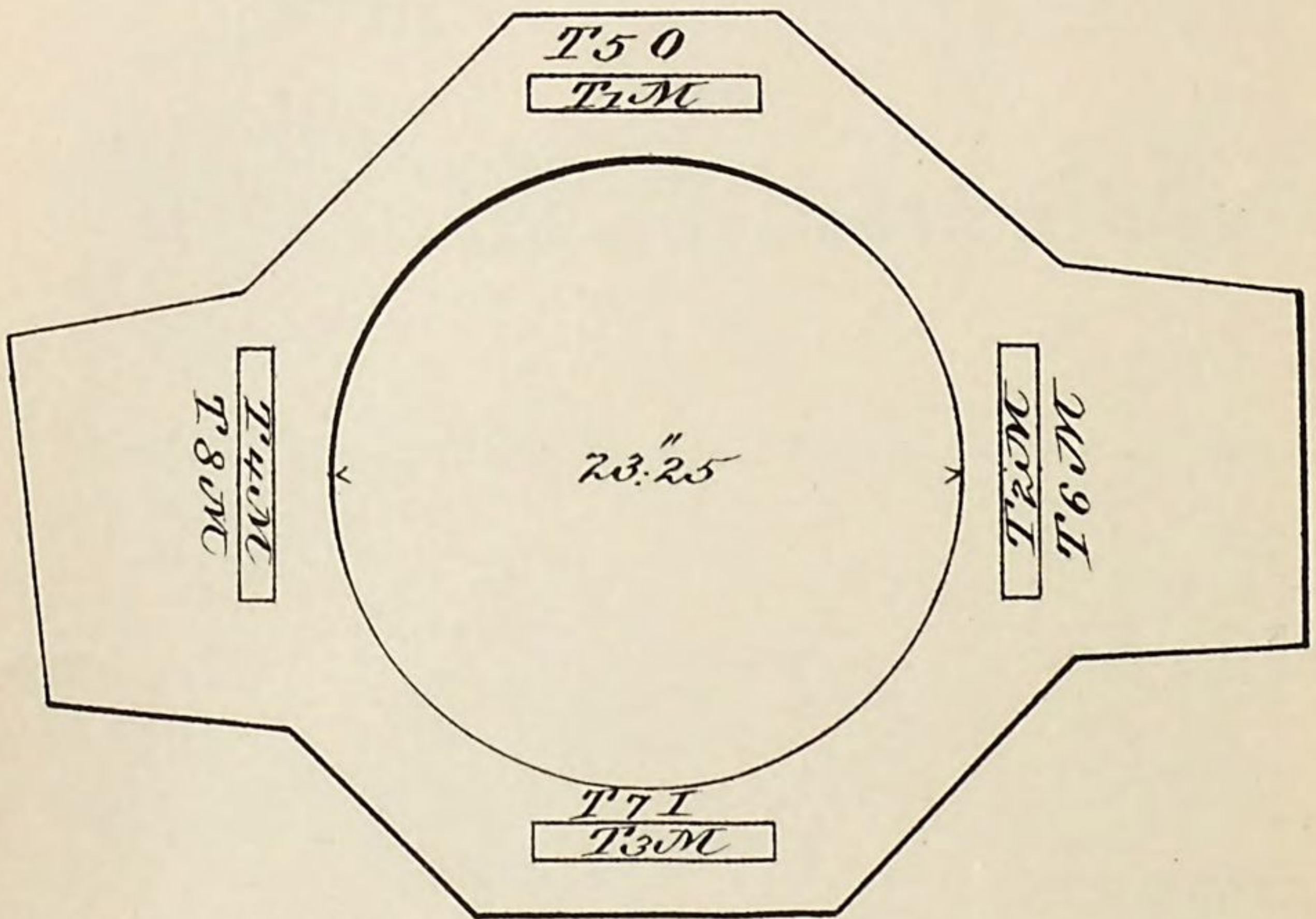
Trunnion Hoop



H Ex 2V 49 2

8" Steel B. L. Rifle No. 1

Trunnion Hoop



STEEL SPECIMENS FROM TRUNNION HOOP FOR 8-INCH STEEL B. L.
RIFLE NO. 1.

No. 2408.

Marks, $\frac{8 R_1 T H}{T_1 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000467	.000134	0.	.....	
5,000	20,000	.000617	.000150	0.	.....	
6,250	25,000	.000750	.000133	0.	.....	
7,500	30,000	.000917	.000167	0.	.....	
8,750	35,000	.001067	.000150	0.	.....	
10,000	40,000	.001233	.000166	0.	.....	
11,250	45,000	.001383	.000150	.....	.....	
12,500	50,000	.001567	.000184	.....	.....	
12,750	51,000	.001583	.000016	.....	.....	
13,000	52,000	.001617	.000034			Elastic limit.
13,250	53,000	.001667	.000050	.....	.....	
13,500	54,000	.001700	.000033	.....	.....	
13,750	55,000	.001783	.000083	.....	.....	
14,000	56,000	.001933	.000150	.....	.....	
14,250	57,000	.002133	.000200	.....	.....	
14,500	58,000	.003117	.000984	.....	.....	
14,750	59,000	.004017	.000900	.....	.....	
15,000	60,000	.004850	.000833	.....	.....	
15,500	62,000	.006350	.001500	.....	.....	
16,000	64,000	.007750	.001400	.....	.....	
16,500	66,000	.009133	.001383	.....	.....	
17,000	68,000	.010667	.001534	.....	.....	
17,500	70,000	.012250	.001583	.....	.....	
18,000	72,000	.013833	.001583	.....	.....	
18,500	74,000	.015333	.001500	.....	.....	
19,000	76,000	.017083	.001750			Tensile strength.
19,500	78,000	.018967	.001884	.....	.....	
20,000	80,000	.020967	.002000	.....	.....	
20,500	82,000	.022750	.001783	.....	.....	
21,000	84,000	.024833	.002083	.....	.....	
21,500	86,000	.027083	.002250	.....	.....	
22,000	88,000	.0300	.002917	.....	.....	
22,500	90,000	.0333	.0033	.....	.....	
23,000	92,000	.0350	.0017	.....	.....	
23,500	94,000	.0383	.0033	.....	.....	
24,000	96,000	.0433	.0050	.....	.....	
24,500	98,000	.0483	.0050	.....	.....	
25,000	100,000	.0533	.0050	.....	.....	
25,500	102,000	.0633	.0100	.....	.....	
26,000	104,000	.0767	.0134	.....	.....	
26,410	105,640	.1133	.0366	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	105,640
Elastic limit per square inch of original section.....	do...	54,000
Elongation per inch after rupture.....	inch..	0.1467
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do...	.134
Reduction in area after rupture, per centum of original section.....		41.9
Position of rupture	1".53 from neck	
Character of broken surface.....	silky; interspersed with granular metal	
Elongation of inch sections	".14, ".35*, ".14, ".10, ".08, ".07	

No. 2409.

Marks, $\frac{8}{T_2} \frac{R_1}{M} \frac{T}{H}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000150	.000150	0.	.....	
2,500	10,000	.000333	.000183	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000633	.000133	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001117	.000150	.....	.....	
10,000	40,000	.001283	.000166	.....	.....	
11,250	45,000	.001450	.000167	.....	.....	
11,500	46,000	.001517	.000067	.....	.....	
11,750	47,000	.001550	.000033	.....	.....	
12,000	48,000	.001567	.000017	.....	.....	
12,250	49,000	.001600	.000033	.....	.....	
12,500	50,000	.001617	.000017	.....	.....	
12,750	51,000	.001633	.000016	.....	.....	
13,000	52,000	.001683	.000050	.....	.....	
13,250	53,000	.001717	.000034	.....	.....	
13,500	54,000	.001750	.000033	.....	.....	Elastic limit.
13,750	55,000	.001833	.000083	.....	.....	
14,000	56,000	.001967	.000134	.....	.....	
14,250	57,000	.002250	.000283	.....	.....	
14,500	58,000	.003333	.001083	.....	.....	
14,750	59,000	.003917	.000584	.....	.....	
15,000	60,000	.004767	.000850	.....	.....	
15,500	62,000	.006250	.001483	.....	.....	
16,000	64,000	.007583	.001333	.....	.....	
16,500	66,000	.009150	.001567	.....	.....	
17,000	68,000	.010833	.001683	.....	.....	
17,500	70,000	.012167	.001334	.....	.....	
18,000	72,000	.013667	.001500	.....	.....	
18,500	74,000	.015517	.001850	.....	.....	
19,000	76,000	.017000	.001483	.....	.....	
19,500	78,000	.018667	.001667	.....	.....	
20,000	80,000	.020667	.002000	.....	.....	
20,500	82,000	.022750	.002083	.....	.....	
21,000	84,000	.024917	.002167	.....	.....	
21,500	86,000	.0267	.001783	.....	.....	
22,000	88,000	.0300	.0033	.....	.....	
22,500	90,000	.0333	.0033	.....	.....	
23,000	92,000	.0350	.0017	.....	.....	
23,500	94,000	.0367	.0017	.....	.....	
24,000	96,000	.0417	.0050	.....	.....	
24,500	98,000	.0467	.0050	.....	.....	
25,000	100,000	.0517	.0050	.....	.....	
25,500	102,000	.0633	.0116	.....	.....	
26,000	104,000	.0783	.0150	.....	.....	
26,280	105,120	.0983	.0200	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	105,120
Elastic limit per square inch of original section	do...	54,000
Elongation per inch after rupture	inch..	0.1283
Elongation per inch under strain at elastic limit	do...	.001750
Reduction in diameter at point of rupture	do...	.104
Reduction in area after rupture, per centum of original section		33.5
Position of rupture		2".15 from neck
Character of broken surface	silky, 50 per centum ; granular, 50 per centum	
Elongation of inch sections	".11, ".26*, ".19, ".09, ".06, ".06	

No. 2410

Marks, $\frac{8 R_1 T H}{T_3 M}$

Diameter, ".564.

Sectional area, .25 square inch

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000117	.000117	0.	.....	
2,500	10,000	.000283	.000166	0.	.....	
3,750	15,000	.000450	.000167	0.	.....	
5,000	20,000	.000600	.000150	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	.....	.....	
10,000	40,000	.001233	.000133	.....	.....	
11,250	45,000	.001400	.000167	.....	.....	
12,500	50,000	.001567	.000167	.....	.....	
12,750	51,000	.001600	.000033	.....	.....	
13,000	52,000	.001650	.000050	.....	.....	
13,250	53,000	.001683	.000033	.....	.....	
13,500	54,000	.001717	.000034	.....	.....	
13,750	55,000	.001750	.000033	.....	.....	
14,000	56,000	.001783	.000033	.....	.....	
14,250	57,000	.001833	.000050	.....	.....	
14,500	58,000	.001867	.000034	.....	.....	
14,750	59,000	.001917	.000050			Elastic limit.
15,000	60,000	.001967	.000050	.....	.....	
15,250	61,000	.002050	.000083	.....	.....	
15,500	62,000	.002567	.000517	.....	.....	
15,750	63,000	.003417	.000850	.....	.....	
16,000	64,000	.004500	.001083	.....	.....	
16,250	65,000	.005167	.000667	.....	.....	
16,500	66,000	.005783	.000616	.....	.....	
16,750	67,000	.006500	.000717	.....	.....	
17,000	68,000	.007333	.000833	.....	.....	
17,250	69,000	.008167	.000834	.....	.....	
17,500	70,000	.008833	.000666	.....	.....	
18,000	72,000	.010333	.001500	.....	.....	
18,500	74,000	.011717	.001384	.....	.....	
19,000	76,000	.013267	.001550	.....	.....	
19,500	78,000	.015083	.001816	.....	.....	
20,000	80,000	.016750	.001667	.....	.....	
20,500	82,000	.018583	.001833	.....	.....	
21,000	84,000	.020367	.001784	.....	.....	
21,500	86,000	.022333	.001966	.....	.....	
22,000	88,000	.024417	.002084			Tensile strength.
22,500	90,000	.026833	.002416	.....	.....	
23,000	92,000	.029167	.002334	.....	.....	
23,500	94,000	.0300	.000833	.....	.....	
24,000	96,000	.0333	.0033	.....	.....	
24,500	98,000	.0367	.0034	.....	.....	
25,000	100,000	.0400	.0033	.....	.....	
25,500	102,000	.0467	.0067	.....	.....	
26,000	104,000	.0533	.0066	.....	.....	
26,500	106,000	.0617	.0084	.....	.....	
27,000	108,000	.0700	.0083	.....	.....	
27,500	110,000	.1017	.0317	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	110,000
Elastic limit per square inch of original section.....	do...	60,000
Elongation per inch after rupture.....	inch..	0.1367
Elongation per inch under strain at elastic limit.....	do...	.001967
Reduction in diameter at point of rupture.....	do...	.134
Reduction in area after rupture, per centum of original section.....		41.9
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface.....	silky; interspersed with fine granulation	
Elongation of inch sections.....	".08, ".11, ".12, ".30*, ".12, ".09	

No. 2411.

Marks, ^{8 R, T H}_{T, M}

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000450	.000150	0.	.....	
5,000	20,000	.000617	.000167	0.	.....	
6,250	25,000	.000767	.000150	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	.....	.....	
10,000	40,000	.001233	.000133	.....	.....	
11,250	45,000	.001367	.000134	.....	.....	
12,500	50,000	.001550	.000183	.....	.....	
12,750	51,000	.001583	.000033	.....	.....	
13,000	52,000	.001617	.000034	.....	.....	
13,250	53,000	.001650	.000033	.....	.....	
13,500	54,000	.001683	.000033	.....	.....	
13,750	55,000	.001700	.000017	.....	.....	
14,000	56,000	.001733	.000033	.....	.....	
14,250	57,000	.001783	.000050	.....	.....	
14,500	58,000	.001867	.000084	.....	.....	
14,750	59,000	.001900	.000033			Elastic limit.
15,000	60,000	.001950	.000050	.....	.....	
15,250	61,000	.002033	.000083	.....	.....	
15,500	62,000	.002233	.000200	.....	.....	
15,750	63,000	.002733	.000500	.....	.....	
16,000	64,000	.003783	.001050	.....	.....	
16,250	65,000	.004500	.000717	.....	.....	
16,500	66,000	.005417	.000917	.....	.....	
16,750	67,000	.006183	.000766	.....	.....	
17,000	68,000	.007167	.000984	.....	.....	
17,250	69,000	.008000	.000833	.....	.....	
17,500	70,000	.008833	.000833	.....	.....	
18,000	72,000	.010200	.001367	.....	.....	
18,500	74,000	.011583	.001383	.....	.....	
19,000	76,000	.013167	.001584	.....	.....	
19,500	78,000	.014717	.001550	.....	.....	
20,000	80,000	.016417	.001700	.....	.....	
20,500	82,000	.018300	.001883	.....	.....	
21,000	84,000	.020083	.001783	.....	.....	
21,500	86,000	.022167	.002084	.....	.....	
22,000	88,000	.024333	.002166			Tensile strength.
22,500	90,000	.026500	.002167	.....	.....	
23,000	92,000	.028833	.002333	.....	.....	
23,500	94,000	.031250	.002417	.....	.....	
24,000	96,000	.032500	.001250	.....	.....	
24,500	98,000	.0367	.0042	.....	.....	
25,000	100,000	.0400	.0033	.....	.....	
25,500	102,000	.0467	.0067	.....	.....	
26,000	104,000	.0517	.0050	.....	.....	
26,500	106,000	.0583	.0066	.....	.....	
27,000	108,000	.0700	.0117	.....	.....	
27,500	110,000	.0950	.0250	.....	.....	
27,520	110,080	.1050	.0100	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	110,080
Elastic limit per square inch of original section.....	do...	60,000
Elongation per inch after rupture.....	inch..	0.1417
Elongation per inch under strain at elastic limit.....	do...	.001950
Reduction in diameter at point of rupture.....	do...	.125
Reduction in area after rupture, per centum of original section.....		39.2
Position of rupture.....	1".55 from neck	
Character of broken surface.....	silky; traces of granulation	
Elongation of inch sections.....	".13, ".30, ".14, ".11, ".10, ".07	

No. 2412.

Marks, $\frac{8 R_1 T H}{T_5 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000117	.000117	0.	.....	
2,500	10,000	.000283	.000166	0.	.....	
3,750	15,000	.000450	.000167	0.	.....	
5,000	20,000	.000617	.000167	0.	.....	
6,250	25,000	.000767	.000150	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001083	.000150	.....	.....	
10,000	40,000	.001233	.000150	.....	.....	
11,250	45,000	.001400	.000167	.....	.....	
12,500	50,000	.001583	.000183	.....	.....	
12,750	51,000	.001633	.000050	.....	.....	
13,000	52,000	.001683	.000050	.....	.....	
13,250	53,000	.001717	.000034	.....	.....	
13,500	54,000	.001750	.000033	.....	.....	
13,750	55,000	.001767	.000017	.....	.....	
14,000	56,000	.001833	.000066			Elastic limit.
14,250	57,000	.001933	.000100	.....	.....	
14,500	58,000	.002217	.000284	.....	.....	
14,750	59,000	.002700	.000483	.....	.....	
15,000	60,000	.003667	.000967	.....	.....	
15,500	62,000	.005200	.001583	.....	.....	
16,000	64,000	.006667	.001467	.....	.....	
16,500	66,000	.008250	.001583	.....	.....	
17,000	68,000	.009833	.001583	.....	.....	
17,500	70,000	.011333	.001500	.....	.....	
18,000	72,000	.013000	.001667	.....	.....	
18,500	74,000	.014833	.001833	.....	.....	
19,000	76,000	.016667	.001834	.....	.....	
19,500	78,000	.018083	.001416	.....	.....	
20,000	80,000	.020033	.001950	.....	.....	
20,500	82,000	.022050	.002017	.....	.....	
21,000	84,000	.024200	.002150	.....	.....	
21,500	86,000	.026567	.002367	.....	.....	
22,000	88,000	.029167	.002600	.....	.....	
22,500	90,000	.030833	.001666	.....	.....	
23,000	92,000	.0350	.004167	.....	.....	
23,500	94,000	.0367	.0017	.....	.....	
24,000	96,000	.0417	.0050	.....	.....	
24,500	98,000	.0467	.0050	.....	.....	
25,000	100,000	.0517	.0050	.....	.....	
25,500	102,000	.0600	.0083	.....	.....	
26,000	104,000	.0717	.0117	.....	.....	
26,480	105,920	.1100	.0383			Tensile strength.

General summary.

Tensile strength per square inch of original section pounds.. 105,920
 Elastic limit per square inch of original section do... 56,000
 Elongation per inch after rupture inch.. 0.1517
 Elongation per inch under strain at elastic limit do... .001833
 Reduction in diameter at point of rupture do... .124
 Reduction in area after rupture, per centum of original section 39.2
 Position of rupture $\frac{3}{4}$ inch from middle of stem
 Character of broken surface silky; interspersed with granular metal
 Elongation of inch sections ".13, ".10, ".11, ".30*, ".14, ".13

H. Ex. 31—38

No. 2413.

Marks, $\frac{8 R_1 T H}{T_6 M}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000117	.000117	0.	.....	
2,500	10,000	.000283	.000166	0.	.....	
3,750	15,000	.000433	.000150	0.	.....	
5,000	20,000	.000567	.000134	— .000017	— .000017	
6,250	25,000	.000733	.000166	— .000017	0.	
7,500	30,000	.000900	.000167	— .000017	0.	
8,750	35,000	.001033	.000133	— .000017	0.	
10,000	40,000	.001217	.000184	— .000017	0.	
11,250	45,000	.001400	.000183	.....	.....	
12,500	50,000	.001567	.000167	.....	.....	
12,750	51,000	.001583	.000016	.....	.....	
13,000	52,000	.001633	.000050	.....	.....	
13,250	53,000	.001717	.000084			Elastic limit.
13,500	54,000	.001783	.000066	.....	.....	
13,750	55,000	.001933	.000150	.....	.....	
14,000	56,000	.002517	.000584	.....	.....	
14,250	57,000	.003333	.000816	.....	.....	
14,500	58,000	.004083	.000750	.....	.....	
14,750	59,000	.005000	.000917	.....	.....	
15,000	60,000	.005833	.000833	.....	.....	
15,500	62,000	.007167	.001334	.....	.....	
16,000	64,000	.008400	.001233	.....	.....	
16,500	66,000	.009750	.001350	.....	.....	
17,000	68,000	.011333	.001583	.....	.....	
17,500	70,000	.012833	.001500	.....	.....	
18,000	72,000	.014900	.002067			Tensile strength.
18,500	74,000	.016500	.001600	.....	.....	
19,000	76,000	.018167	.001667	.....	.....	
19,500	78,000	.019767	.001600	.....	.....	
20,000	80,000	.021667	.001900	.....	.....	
20,500	82,000	.023833	.002166	.....	.....	
21,000	84,000	.026117	.002284	.....	.....	
21,500	86,000	.028550	.002433	.....	.....	
22,000	88,000	.031500	.002950	.....	.....	
22,500	90,000	.0333	.0018	.....	.....	
23,000	92,000	.0367	.0034	.....	.....	
23,500	94,000	.0400	.0033	.....	.....	
24,000	96,000	.0450	.0050	.....	.....	
24,500	98,000	.0500	.0050	.....	.....	
25,000	100,000	.0583	.0083	.....	.....	
25,500	102,000	.0667	.0084	.....	.....	
26,000	104,000	.0817	.0150	.....	.....	
26,300	105,200	.1133	.0216	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	105,200
Elastic limit per square inch of original section	do...	54,000
Elongation per inch after rupture	inch..	0.1283
Elongation per inch under strain at elastic limit.....	do...	.001783
Reduction in diameter at point of rupture	do...	.075
Reduction in area after rupture, per centum of original section.....		24.6
Position of rupture	".85 from neck	
Character of broken surface.....	granular; radiating from a point in the circumference	
Elongation of inch sections.....	".08, ".10, ".10, ".12, ".15, ".22*	

No. 2414.

Marks, $\begin{smallmatrix} 8 R_1 T H \\ T_7 I \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000117	.000117	0.	-----	
2,500	10,000	.000283	.000166	0.	-----	
3,750	15,000	.000450	.000167	0.	-----	
5,000	20,000	.000600	.000150	0.	-----	
6,250	25,000	.000767	.000167	0.	-----	
7,500	30,000	.000933	.000166	0.	-----	
8,750	35,000	.001083	.000150	0.	-----	
10,000	40,000	.001250	.000167	0.	-----	
11,250	45,000	.001400	.000150	-----	-----	
12,500	50,000	.001600	.000200	-----	-----	
13,750	55,000	.001783	.000183	-----	-----	
15,000	60,000	.001967	.000184	-----	-----	
15,250	61,000	.002017	.000050	-----	-----	
15,500	62,000	.002050	.000033	-----	-----	
15,750	63,000	.002083	.000033	-----	-----	
16,000	64,000	.002117	.000034	-----	-----	
16,250	65,000	.002167	.000050	-----	-----	
16,500	66,000	.002233	.000066	-----	-----	Elastic limit.
16,750	67,000	.002333	.000100	-----	-----	
17,000	68,000	.002500	.000167	-----	-----	
17,250	69,000	.002717	.000217	-----	-----	
17,500	70,000	.003250	.000533	-----	-----	
18,000	72,000	.005000	.001750	-----	-----	
18,500	74,000	.007167	.002167	-----	-----	
19,000	76,000	.009117	.001950	-----	-----	
19,500	78,000	.011083	.001966	-----	-----	
20,000	80,000	.012767	.001684	-----	-----	
20,500	82,000	.014517	.001750	-----	-----	
21,000	84,000	.016083	.001566	-----	-----	
21,500	86,000	.017833	.001750	-----	-----	
22,000	88,000	.019833	.002000	-----	-----	
22,500	90,000	.021917	.002084	-----	-----	
23,500	94,000	.024250	.002333	-----	-----	
24,000	96,000	.026500	.002250	-----	-----	
24,500	98,000	.029333	.002833	-----	-----	
25,000	100,000	.032000	.002667	-----	-----	
25,500	102,000	.0350	.0030	-----	-----	
26,000	104,000	.0367	.0017	-----	-----	
26,500	106,000	.0417	.0050	-----	-----	
27,000	108,000	.0483	.0066	-----	-----	
27,500	110,000	.0583	.0100	-----	-----	
28,000	112,000	.0833	.0250	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....pounds.. 112,000
 Elastic limit per square inch of original sectiondo... 66,000
 Elongation per inch after rupture.....inch.. 0.1300
 Elongation per inch under strain at elastic limit.....do... .002233
 Reduction in diameter at point of rupture.....do... .144
 Reduction in area after rupture, per centum of original section 44.6
 Position of rupture".80 from neck
 Character of broken surface.....silky; interspersed with fine granulation
 Elongation of inch sections".09, ".10, ".09, ".00, ".11, ".30*

No. 2415.

Marks, $\frac{8 R_1 T H}{T_s M}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
10,000	40,000	.001300	.000167	0.	.....	
11,250	45,000	.001467	.000167	.....	.....	
12,500	50,000	.001650	.000183	.....	.....	
12,750	51,000	.001700	.000050	.....	.....	
13,000	52,000	.001717	.000017	.....	.....	
13,250	53,000	.001750	.000033	.....	.....	
13,500	54,000	.001850	.000100	.....	.....	
13,750	55,000	.001883	.000033	.....	.....	Elastic limit.
14,000	56,000	.001967	.000084	.....	.....	
14,250	57,000	.002100	.000133	.....	.....	
14,500	58,000	.002517	.000417	.....	.....	
14,750	59,000	.003083	.000566	.....	.....	
15,000	60,000	.003833	.000750	.....	.....	
15,500	62,000	.005200	.001367	.....	.....	
16,000	64,000	.006500	.001300	.....	.....	
16,500	66,000	.007883	.001383	.....	.....	
17,000	68,000	.009417	.001534	.....	.....	
17,500	70,000	.011167	.001750	.....	.....	
18,000	72,000	.012663	.001466	.....	.....	
18,500	74,000	.014000	.001367	.....	.....	
19,000	76,000	.015667	.001667	.....	.....	
19,500	78,000	.017333	.001666	.....	.....	
20,000	80,000	.019000	.001667	.....	.....	
20,500	82,000	.021000	.002000	.....	.....	
21,000	84,000	.023267	.002267	.....	.....	
21,500	86,000	.025500	.002233	.....	.....	
22,000	88,000	.027683	.002183	.....	.....	
22,500	90,000	.030583	.002900	.....	.....	
23,000	92,000	.0317	.001117	.....	.....	
23,500	94,000	.0350	.0033	.....	.....	
24,000	96,000	.0367	.0017	.....	.....	
24,500	98,000	.0433	.0066	.....	.....	
25,000	100,000	.0483	.0050	.....	.....	
25,500	102,000	.0533	.0050	.....	.....	
26,000	104,000	.0617	.0084	.....	.....	
26,500	106,000	.0750	.0133	.....	.....	
26,950	107,800	.1150	.0400	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	107,800
Elastic limit per square inch of original section.....	do...	55,000
Elongation per inch after rupture.....	inch..	0.1283
Elongation per inch under strain at elastic limit.....	do...	.001883
Reduction in diameter at point of rupture.....	do...	.055
Reduction in area after rupture, per centum of original section		18.3
Position of rupture	".30 from middle of stem	
Character of broken surface.....	granular; dull eccentric spot	
Elongation of inch sections.....	".09, ".12, ".15, ".19*, ".13, ".09	

No. 370.

Marked, 1/2

Diameter, .564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Stress with elongation per inch.	Permanent set.	Increase in permanent set.	Remarks.
Tons.	Pounds.					
0.000	0.000	0.000	0.000	0.000	0.000	
0.100	100.00	0.000	100.00	0.000	0.000	
0.200	200.00	0.000	200.00	0.000	0.000	
0.300	300.00	0.000	300.00	0.000	0.000	
0.400	400.00	0.000	400.00	0.000	0.000	
0.500	500.00	0.000	500.00	0.000	0.000	
0.600	600.00	0.000	600.00	0.000	0.000	
0.700	700.00	0.000	700.00	0.000	0.000	
0.800	800.00	0.000	800.00	0.000	0.000	
0.900	900.00	0.000	900.00	0.000	0.000	
1.000	1000.00	0.000	1000.00	0.000	0.000	
1.100	1100.00	0.000	1100.00	0.000	0.000	
1.200	1200.00	0.000	1200.00	0.000	0.000	
1.300	1300.00	0.000	1300.00	0.000	0.000	
1.400	1400.00	0.000	1400.00	0.000	0.000	
1.500	1500.00	0.000	1500.00	0.000	0.000	
1.600	1600.00	0.000	1600.00	0.000	0.000	
1.700	1700.00	0.000	1700.00	0.000	0.000	
1.800	1800.00	0.000	1800.00	0.000	0.000	
1.900	1900.00	0.000	1900.00	0.000	0.000	
2.000	2000.00	0.000	2000.00	0.000	0.000	
2.100	2100.00	0.000	2100.00	0.000	0.000	
2.200	2200.00	0.000	2200.00	0.000	0.000	
2.300	2300.00	0.000	2300.00	0.000	0.000	
2.400	2400.00	0.000	2400.00	0.000	0.000	
2.500	2500.00	0.000	2500.00	0.000	0.000	
2.600	2600.00	0.000	2600.00	0.000	0.000	
2.700	2700.00	0.000	2700.00	0.000	0.000	
2.800	2800.00	0.000	2800.00	0.000	0.000	
2.900	2900.00	0.000	2900.00	0.000	0.000	
3.000	3000.00	0.000	3000.00	0.000	0.000	
3.100	3100.00	0.000	3100.00	0.000	0.000	
3.200	3200.00	0.000	3200.00	0.000	0.000	
3.300	3300.00	0.000	3300.00	0.000	0.000	
3.400	3400.00	0.000	3400.00	0.000	0.000	
3.500	3500.00	0.000	3500.00	0.000	0.000	
3.600	3600.00	0.000	3600.00	0.000	0.000	
3.700	3700.00	0.000	3700.00	0.000	0.000	
3.800	3800.00	0.000	3800.00	0.000	0.000	
3.900	3900.00	0.000	3900.00	0.000	0.000	
4.000	4000.00	0.000	4000.00	0.000	0.000	
4.100	4100.00	0.000	4100.00	0.000	0.000	
4.200	4200.00	0.000	4200.00	0.000	0.000	
4.300	4300.00	0.000	4300.00	0.000	0.000	
4.400	4400.00	0.000	4400.00	0.000	0.000	
4.500	4500.00	0.000	4500.00	0.000	0.000	
4.600	4600.00	0.000	4600.00	0.000	0.000	
4.700	4700.00	0.000	4700.00	0.000	0.000	
4.800	4800.00	0.000	4800.00	0.000	0.000	
4.900	4900.00	0.000	4900.00	0.000	0.000	
5.000	5000.00	0.000	5000.00	0.000	0.000	
5.100	5100.00	0.000	5100.00	0.000	0.000	
5.200	5200.00	0.000	5200.00	0.000	0.000	
5.300	5300.00	0.000	5300.00	0.000	0.000	
5.400	5400.00	0.000	5400.00	0.000	0.000	
5.500	5500.00	0.000	5500.00	0.000	0.000	
5.600	5600.00	0.000	5600.00	0.000	0.000	
5.700	5700.00	0.000	5700.00	0.000	0.000	
5.800	5800.00	0.000	5800.00	0.000	0.000	
5.900	5900.00	0.000	5900.00	0.000	0.000	
6.000	6000.00	0.000	6000.00	0.000	0.000	
6.100	6100.00	0.000	6100.00	0.000	0.000	
6.200	6200.00	0.000	6200.00	0.000	0.000	
6.300	6300.00	0.000	6300.00	0.000	0.000	
6.400	6400.00	0.000	6400.00	0.000	0.000	
6.500	6500.00	0.000	6500.00	0.000	0.000	
6.600	6600.00	0.000	6600.00	0.000	0.000	
6.700	6700.00	0.000	6700.00	0.000	0.000	
6.800	6800.00	0.000	6800.00	0.000	0.000	
6.900	6900.00	0.000	6900.00	0.000	0.000	
7.000	7000.00	0.000	7000.00	0.000	0.000	
7.100	7100.00	0.000	7100.00	0.000	0.000	
7.200	7200.00	0.000	7200.00	0.000	0.000	
7.300	7300.00	0.000	7300.00	0.000	0.000	
7.400	7400.00	0.000	7400.00	0.000	0.000	
7.500	7500.00	0.000	7500.00	0.000	0.000	
7.600	7600.00	0.000	7600.00	0.000	0.000	
7.700	7700.00	0.000	7700.00	0.000	0.000	
7.800	7800.00	0.000	7800.00	0.000	0.000	
7.900	7900.00	0.000	7900.00	0.000	0.000	
8.000	8000.00	0.000	8000.00	0.000	0.000	
8.100	8100.00	0.000	8100.00	0.000	0.000	
8.200	8200.00	0.000	8200.00	0.000	0.000	
8.300	8300.00	0.000	8300.00	0.000	0.000	
8.400	8400.00	0.000	8400.00	0.000	0.000	
8.500	8500.00	0.000	8500.00	0.000	0.000	
8.600	8600.00	0.000	8600.00	0.000	0.000	
8.700	8700.00	0.000	8700.00	0.000	0.000	
8.800	8800.00	0.000	8800.00	0.000	0.000	
8.900	8900.00	0.000	8900.00	0.000	0.000	
9.000	9000.00	0.000	9000.00	0.000	0.000	
9.100	9100.00	0.000	9100.00	0.000	0.000	
9.200	9200.00	0.000	9200.00	0.000	0.000	
9.300	9300.00	0.000	9300.00	0.000	0.000	
9.400	9400.00	0.000	9400.00	0.000	0.000	
9.500	9500.00	0.000	9500.00	0.000	0.000	
9.600	9600.00	0.000	9600.00	0.000	0.000	
9.700	9700.00	0.000	9700.00	0.000	0.000	
9.800	9800.00	0.000	9800.00	0.000	0.000	
9.900	9900.00	0.000	9900.00	0.000	0.000	
10.000	10000.00	0.000	10000.00	0.000	0.000	

0.000	0.000	0.000
0.100	100.00	0.000
0.200	200.00	0.000
0.300	300.00	0.000
0.400	400.00	0.000
0.500	500.00	0.000
0.600	600.00	0.000
0.700	700.00	0.000
0.800	800.00	0.000
0.900	900.00	0.000
1.000	1000.00	0.000

0.000	0.000	0.000
0.100	100.00	0.000
0.200	200.00	0.000
0.300	300.00	0.000
0.400	400.00	0.000
0.500	500.00	0.000
0.600	600.00	0.000
0.700	700.00	0.000
0.800	800.00	0.000
0.900	900.00	0.000
1.000	1000.00	0.000



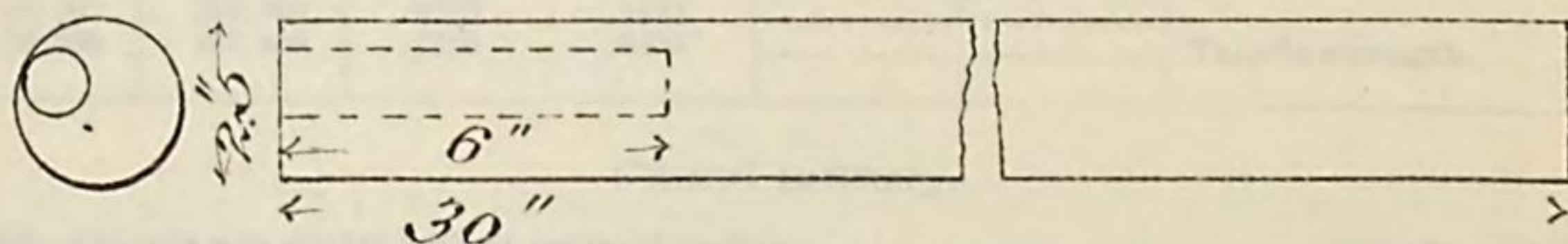
H Ex 31 49 2

Continued.

These tests were made by the Bureau of Standards, Washington, D. C., in 1901. The material was supplied by the Carnegie Steel Company, Pittsburgh, Pa. The tests were made in accordance with the specifications of the American Society of Mechanical Engineers. The results of the tests are given in the table above. The material was found to be of good quality and to meet the requirements of the specifications.

8" Steel B. L. Rifle No. 1

Coupling pin



H Ex 3/ 49 2

No. 2707.

Marks, $\frac{8}{C P}$ in

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000110	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000533	.000133	0.	.....	
6,250	25,000	.000733	.000200	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
10,000	40,000	.001233	.000166	0.	.....	
11,250	45,000	.001367	.000134	.....	.....	
11,500	46,000	.001400	.000033	.....	.....	
11,750	47,000	.001467	.000067	.....	.....	
12,000	48,000	.001500	.000033	.....	.....	
12,250	49,000	.001533	.000033	.....	.....	
12,500	50,000	.001600	.000067	.....	.....	
12,750	51,000	.001633	.000033	.....	.....	
13,000	52,000	.001667	.000034	.....	.....	
13,250	53,000	.001700	.000033	.....	.....	
13,500	54,000	.001700	0.	.....	.....	
13,750	55,000	.001733	.000033	.....	.....	
14,000	56,000	.001767	.000034	.....	.....	
14,250	57,000	.001867	.000100	.....	.....	
14,500	58,000	.001967	.000100	.....	.....	
14,750	59,000	.002000	.000033	.....	.....	
15,000	60,000	.002033	.000033	.....	.....	
15,250	61,000	.002067	.000034	.....	.....	
15,500	62,000	.002067	0.	.....	.....	
15,750	63,000	.002100	.000033	.....	.....	
16,000	64,000	.002133	.000033	.....	.....	
16,250	65,000	.002167	.000034	.....	.....	
16,500	66,000	.002167	0.	.....	.....	
16,750	67,000	.002233	.000066	.....	.....	
17,000	68,000	.002333	.000100	.....	.....	
17,250	69,000	.002367	.000034	.....	.....	
17,500	70,000	.002400	.000033	.....	.....	Elastic limit.
17,750	71,000	.002567	.000167	.....	.....	
18,000	72,000	.002733	.000166	.....	.....	
18,250	73,000	.002933	.000200	.....	.....	
18,500	74,000	.003333	.000400	.....	.....	
18,750	75,000	.003800	.000467	.....	.....	
19,000	76,000	.004233	.000433	.....	.....	
19,500	78,000	.005767	.001534	.....	.....	
20,000	80,000	.006833	.001066	.....	.....	
20,500	82,000	.008367	.001534	.....	.....	
21,000	84,000	.010000	.001633	.....	.....	
21,500	86,000	.011167	.001167	.....	.....	
22,000	88,000	.012667	.001500	.....	.....	
22,500	90,000	.013900	.001233	.....	.....	
23,000	92,000	.0150	.0011	.....	.....	
23,500	94,000	.0167	.0017	.....	.....	
25,000	100,000	.0217	.0050	.....	.....	
26,000	104,000	.0267	.0050	.....	.....	
27,000	108,000	.0300	.0033	.....	.....	
28,000	112,000	.0333	.0033	.....	.....	
29,000	116,000	.0400	.0067	.....	.....	
30,000	120,000	.0567	.0167	.....	.....	
31,050	124,200	.0967	.0400	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	124,200
Elastic limit per square inch of original section.....	do...	70,600
Elongation per inch after rupture.....	inch...	0.1133
Elongation per inch under strain at elastic limit.....	do...	.002400
Reduction in diameter at point of rupture.....	do...	.064
Reduction in area after rupture, per centum of original section.....		21.4
Position of rupture.....	"	.90 from neck
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections.....	".06, ".13, ".15*	

*TABULATION OF TENSION SPECIMENS FROM TUBE FOR 8-INCH STEEL B.
L. RIFLE NO. 1.*

No. of test.	Position in gun.	Location of specimen.	Elastic limit per square inch.	Tensile strength per square inch.	Elongation.	Contraction of area.	Appearance of fracture.	Specific gravity.	Hardness.
			<i>Pounds.</i>	<i>Pounds.</i>	<i>Per. ct.</i>	<i>Per. ct.</i>			
2335	Breech	Inside	40,000	79,760	22.7	47.2	Silky		
2336	do	Outside	44,000	83,440	22.7	49.7	Silky; trace of granulation.		
2337	do	Middle	43,000	83,400	23.0	49.7	Silky; slightly granular.		
2338	do	Outside	49,000	89,500	26.5	54.6	Silky		
2339	do	Inside	46,000	84,400	27.0	59.8	do		
2332	Muzzle	do	56,000	95,920	16.7	30.6	Granular; dull flaky spot.	7.8561	19.81
2333	do	Outside	48,000	89,700	23.3	47.2	Silky; interspersed with granulation.		
2334	do	Middle	47,000	90,560	19.0	27.6	Granular; dull flaky spot.		
*2564	Breech	Inside	49,000	86,840	23.3	49.7	Silky		
*2565	do	Outside	51,000	90,400	20.0	52.2	do		
*2566	do	Middle	46,000	86,200	21.0	52.2	do		
*2567	Muzzle	Inside	53,000	94,320	17.0	21.4	Granular; flaky spot.		
*2568	do	Outside	52,000	94,080	19.7	54.6	Silky; trace of granulation.		
*2569	do	Middle	50,000	91,600	21.3	41.9	Silky		

* Second slice after retreatment.

*TABULATION OF COMPRESSION SPECIMENS FROM TUBE FOR 8-INCH
STEEL B. L. RIFLE NO. 1.*

No. of test.	Position in gun.	Location of specimen.	Elastic limit per square inch.	Ultimate strength per square inch.	Manner of failure.
			<i>Pounds.</i>	<i>Pounds.</i>	
638	Breech	Inside	39,000	70,360	Triple flexure.
637	do	Outside	47,000	81,300	Do.
639	do	Middle	40,000	72,840	Do.
642	do	Radial	44,000	93,700	Do.
643	do	do	42,000	89,880	Do.
639½	Muzzle	Inside	56,000	83,560	Do.
640	do	Outside	52,000	87,300	Do.
641	do	Middle	51,000	83,800	Do.
644	do	Radial	51,000		Shortened ".155.
645	do	do	49,000		Shortened ".170.
*662	Breech	Inside	49,000	85,760	Triple flexure.
*663	do	Outside	50,000	93,400	Do.
*664	do	Radial	47,000	97,040	Do.
*665	Muzzle	Inside	57,000	94,600	Do.
*666	do	Outside	53,000	91,360	Do.
*667	do	Radial	53,000	112,250	Do.

* Second slice after retreatment.

*TABULATION OF TENSION SPECIMENS FROM TRUNNION-HOOP AND
COUPLING-PIN FOR 8-INCH STEEL B. L. RIFLE NO. 1.*

No. of test.	Position in gun.	Location of specimens.	Elastic limit per square inch.	Tensile strength per square inch.	Elongation.	Contraction of area.	Appearance of fracture.
			<i>Pounds.</i>	<i>Pounds.</i>	<i>Per. ct.</i>	<i>Per. ct.</i>	
2408	T. hoop	Middle....	54,000	105,640	14.7	41.9	Silky, with granular metal.
2409	do	..do	54,000	105,120	12.8	33.5	Silky, 50 per cent.; granular 50 per cent.
2410	do	..do	60,000	110,000	13.7	41.9	Silky, with fine granulation.
2411	do	..do	60,000	110,080	14.2	39.2	Silky; traces of granulation.
2412	do	Outside...	56,000	105,920	15.2	39.2	Silky, with granular metal.
2413	do	Middle...	54,000	105,200	12.8	24.6	Granular.
2414	do	Inside....	66,000	112,000	13.0	44.6	Silky, with fine granulation.
2415	do	Middle....	55,000	107,800	12.8	18.3	Granular; dull spot.
2707	Coupling-pin....	End	70,000	124,200	11.3	21.4	Do.

SPECIMENS FROM STEEL TUBES

FOR

8-INCH CONVERTED RIFLES.

RECEIVED FROM STATE TREASURY

PAID TO THE STATE TREASURY

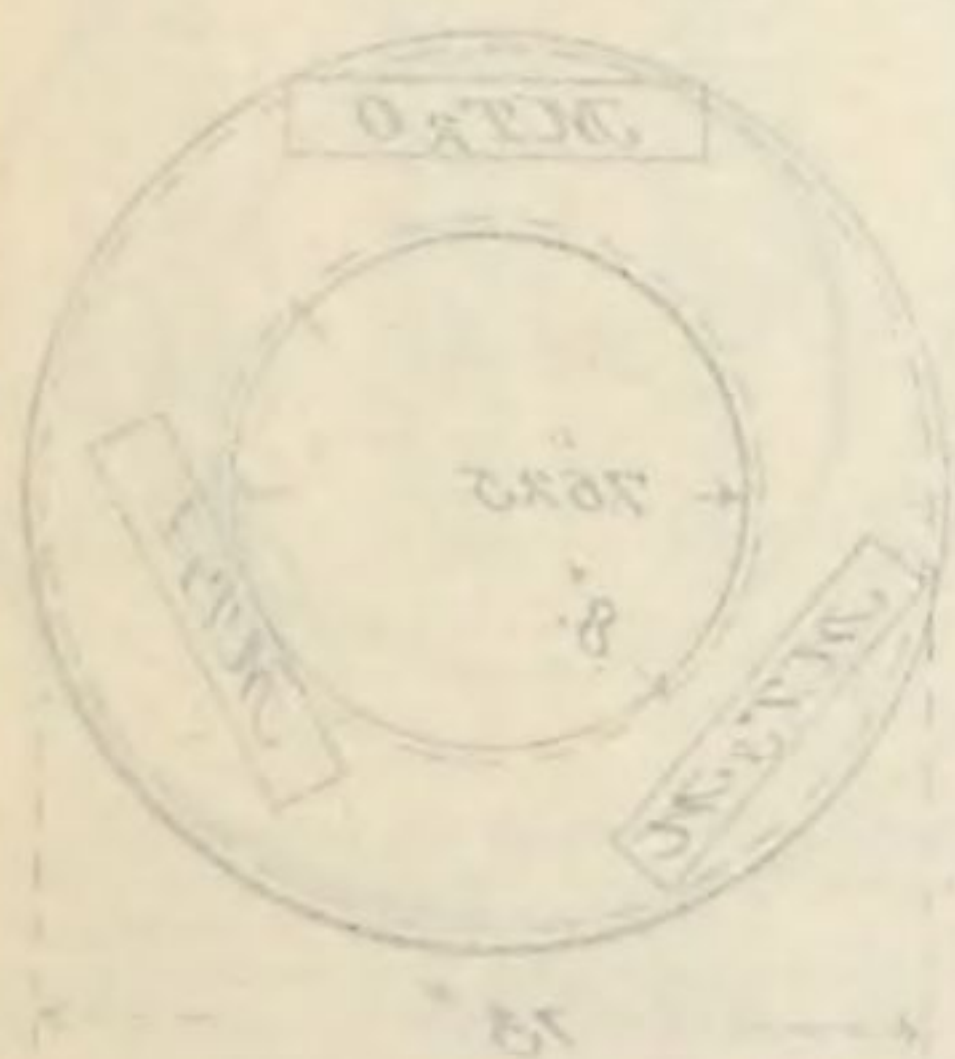
Tube 8" converted Rifle

General drawing showing
positions from whence
specimens were taken.

Break end



Muzzle end

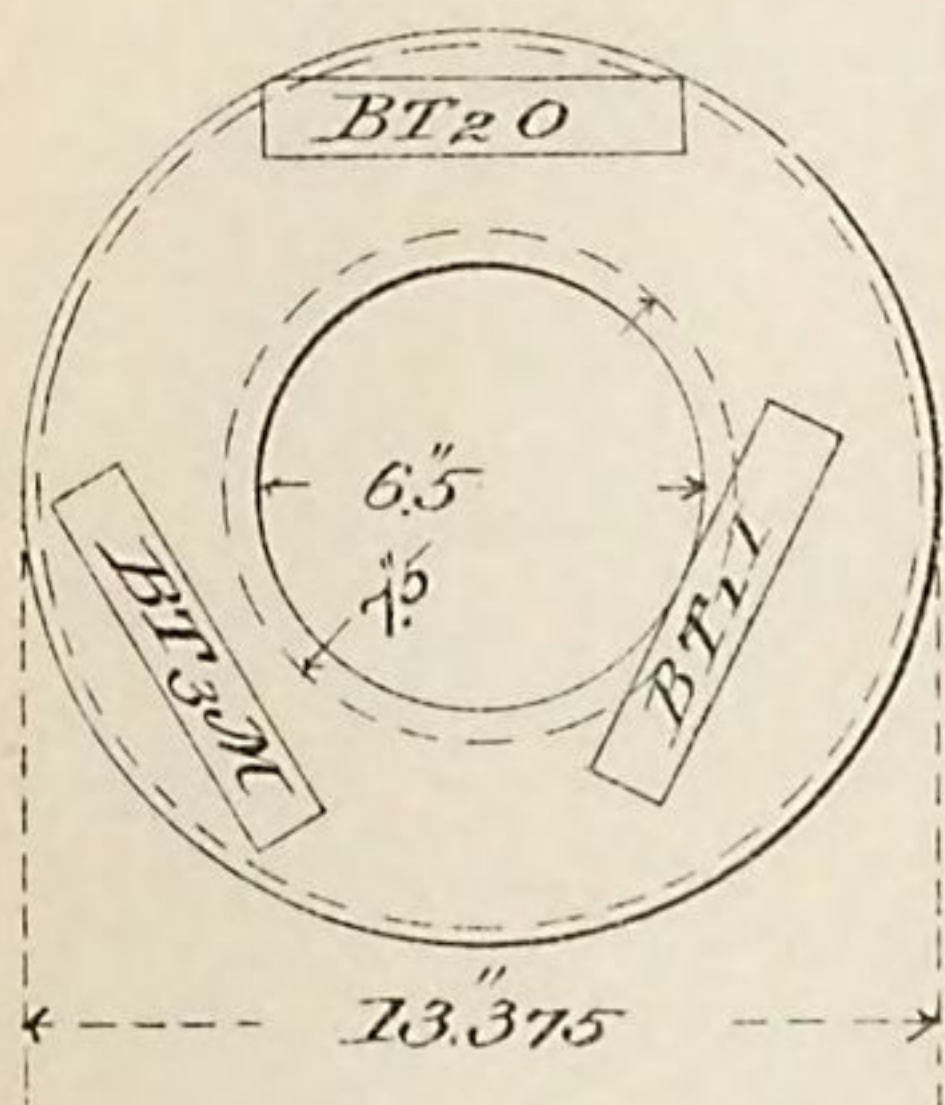


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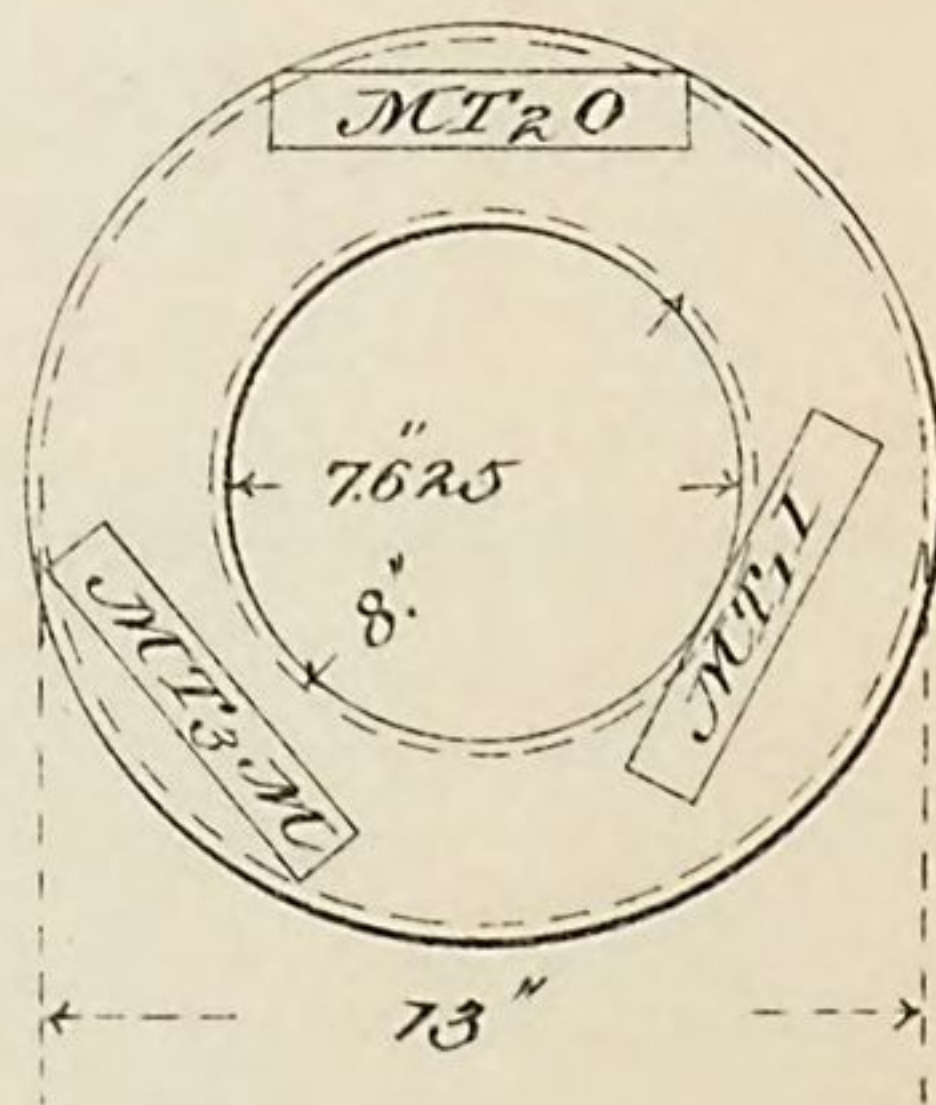
Tube 8" converted Rifle

*General drawing showing
positions from whence
specimens were taken.*

Breech end



Muzzle end



SPECIMENS FROM STEEL TUBES FOR 8-INCH CONVERTED RIFLES.

No. 2311.

Material, S. W.

Diameter, 7.564.

Sectional area, .25 square inch.

8" converted Rifle

Tube No. 7

Table	Distance from muzzle	Distance from breech	Distance from center	Distance from edge	Distance from corner	Distance from hole
1	1.00	1.00	1.00	1.00	1.00	1.00
2	1.00	1.00	1.00	1.00	1.00	1.00
3	1.00	1.00	1.00	1.00	1.00	1.00
4	1.00	1.00	1.00	1.00	1.00	1.00
5	1.00	1.00	1.00	1.00	1.00	1.00
6	1.00	1.00	1.00	1.00	1.00	1.00
7	1.00	1.00	1.00	1.00	1.00	1.00
8	1.00	1.00	1.00	1.00	1.00	1.00
9	1.00	1.00	1.00	1.00	1.00	1.00
10	1.00	1.00	1.00	1.00	1.00	1.00
11	1.00	1.00	1.00	1.00	1.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00
13	1.00	1.00	1.00	1.00	1.00	1.00
14	1.00	1.00	1.00	1.00	1.00	1.00
15	1.00	1.00	1.00	1.00	1.00	1.00
16	1.00	1.00	1.00	1.00	1.00	1.00
17	1.00	1.00	1.00	1.00	1.00	1.00
18	1.00	1.00	1.00	1.00	1.00	1.00
19	1.00	1.00	1.00	1.00	1.00	1.00
20	1.00	1.00	1.00	1.00	1.00	1.00
21	1.00	1.00	1.00	1.00	1.00	1.00
22	1.00	1.00	1.00	1.00	1.00	1.00
23	1.00	1.00	1.00	1.00	1.00	1.00
24	1.00	1.00	1.00	1.00	1.00	1.00
25	1.00	1.00	1.00	1.00	1.00	1.00
26	1.00	1.00	1.00	1.00	1.00	1.00
27	1.00	1.00	1.00	1.00	1.00	1.00
28	1.00	1.00	1.00	1.00	1.00	1.00
29	1.00	1.00	1.00	1.00	1.00	1.00
30	1.00	1.00	1.00	1.00	1.00	1.00
31	1.00	1.00	1.00	1.00	1.00	1.00
32	1.00	1.00	1.00	1.00	1.00	1.00
33	1.00	1.00	1.00	1.00	1.00	1.00
34	1.00	1.00	1.00	1.00	1.00	1.00
35	1.00	1.00	1.00	1.00	1.00	1.00
36	1.00	1.00	1.00	1.00	1.00	1.00
37	1.00	1.00	1.00	1.00	1.00	1.00
38	1.00	1.00	1.00	1.00	1.00	1.00
39	1.00	1.00	1.00	1.00	1.00	1.00
40	1.00	1.00	1.00	1.00	1.00	1.00
41	1.00	1.00	1.00	1.00	1.00	1.00
42	1.00	1.00	1.00	1.00	1.00	1.00
43	1.00	1.00	1.00	1.00	1.00	1.00
44	1.00	1.00	1.00	1.00	1.00	1.00
45	1.00	1.00	1.00	1.00	1.00	1.00
46	1.00	1.00	1.00	1.00	1.00	1.00
47	1.00	1.00	1.00	1.00	1.00	1.00
48	1.00	1.00	1.00	1.00	1.00	1.00
49	1.00	1.00	1.00	1.00	1.00	1.00
50	1.00	1.00	1.00	1.00	1.00	1.00
51	1.00	1.00	1.00	1.00	1.00	1.00
52	1.00	1.00	1.00	1.00	1.00	1.00
53	1.00	1.00	1.00	1.00	1.00	1.00
54	1.00	1.00	1.00	1.00	1.00	1.00
55	1.00	1.00	1.00	1.00	1.00	1.00
56	1.00	1.00	1.00	1.00	1.00	1.00
57	1.00	1.00	1.00	1.00	1.00	1.00
58	1.00	1.00	1.00	1.00	1.00	1.00
59	1.00	1.00	1.00	1.00	1.00	1.00
60	1.00	1.00	1.00	1.00	1.00	1.00
61	1.00	1.00	1.00	1.00	1.00	1.00
62	1.00	1.00	1.00	1.00	1.00	1.00
63	1.00	1.00	1.00	1.00	1.00	1.00
64	1.00	1.00	1.00	1.00	1.00	1.00
65	1.00	1.00	1.00	1.00	1.00	1.00
66	1.00	1.00	1.00	1.00	1.00	1.00
67	1.00	1.00	1.00	1.00	1.00	1.00
68	1.00	1.00	1.00	1.00	1.00	1.00
69	1.00	1.00	1.00	1.00	1.00	1.00
70	1.00	1.00	1.00	1.00	1.00	1.00
71	1.00	1.00	1.00	1.00	1.00	1.00
72	1.00	1.00	1.00	1.00	1.00	1.00
73	1.00	1.00	1.00	1.00	1.00	1.00
74	1.00	1.00	1.00	1.00	1.00	1.00
75	1.00	1.00	1.00	1.00	1.00	1.00
76	1.00	1.00	1.00	1.00	1.00	1.00
77	1.00	1.00	1.00	1.00	1.00	1.00
78	1.00	1.00	1.00	1.00	1.00	1.00
79	1.00	1.00	1.00	1.00	1.00	1.00
80	1.00	1.00	1.00	1.00	1.00	1.00
81	1.00	1.00	1.00	1.00	1.00	1.00
82	1.00	1.00	1.00	1.00	1.00	1.00
83	1.00	1.00	1.00	1.00	1.00	1.00
84	1.00	1.00	1.00	1.00	1.00	1.00
85	1.00	1.00	1.00	1.00	1.00	1.00
86	1.00	1.00	1.00	1.00	1.00	1.00
87	1.00	1.00	1.00	1.00	1.00	1.00
88	1.00	1.00	1.00	1.00	1.00	1.00
89	1.00	1.00	1.00	1.00	1.00	1.00
90	1.00	1.00	1.00	1.00	1.00	1.00
91	1.00	1.00	1.00	1.00	1.00	1.00
92	1.00	1.00	1.00	1.00	1.00	1.00
93	1.00	1.00	1.00	1.00	1.00	1.00
94	1.00	1.00	1.00	1.00	1.00	1.00
95	1.00	1.00	1.00	1.00	1.00	1.00
96	1.00	1.00	1.00	1.00	1.00	1.00
97	1.00	1.00	1.00	1.00	1.00	1.00
98	1.00	1.00	1.00	1.00	1.00	1.00
99	1.00	1.00	1.00	1.00	1.00	1.00
100	1.00	1.00	1.00	1.00	1.00	1.00

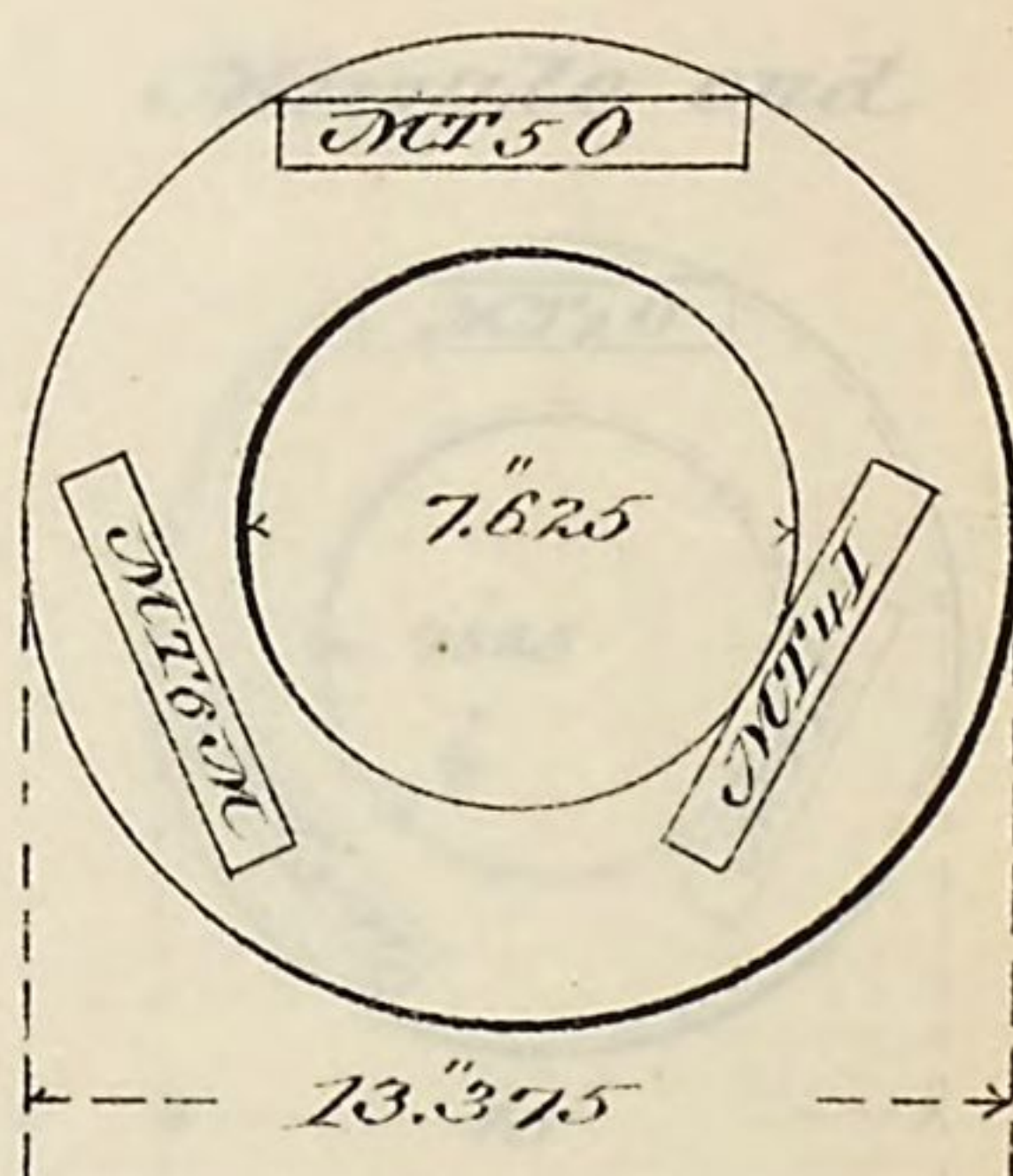
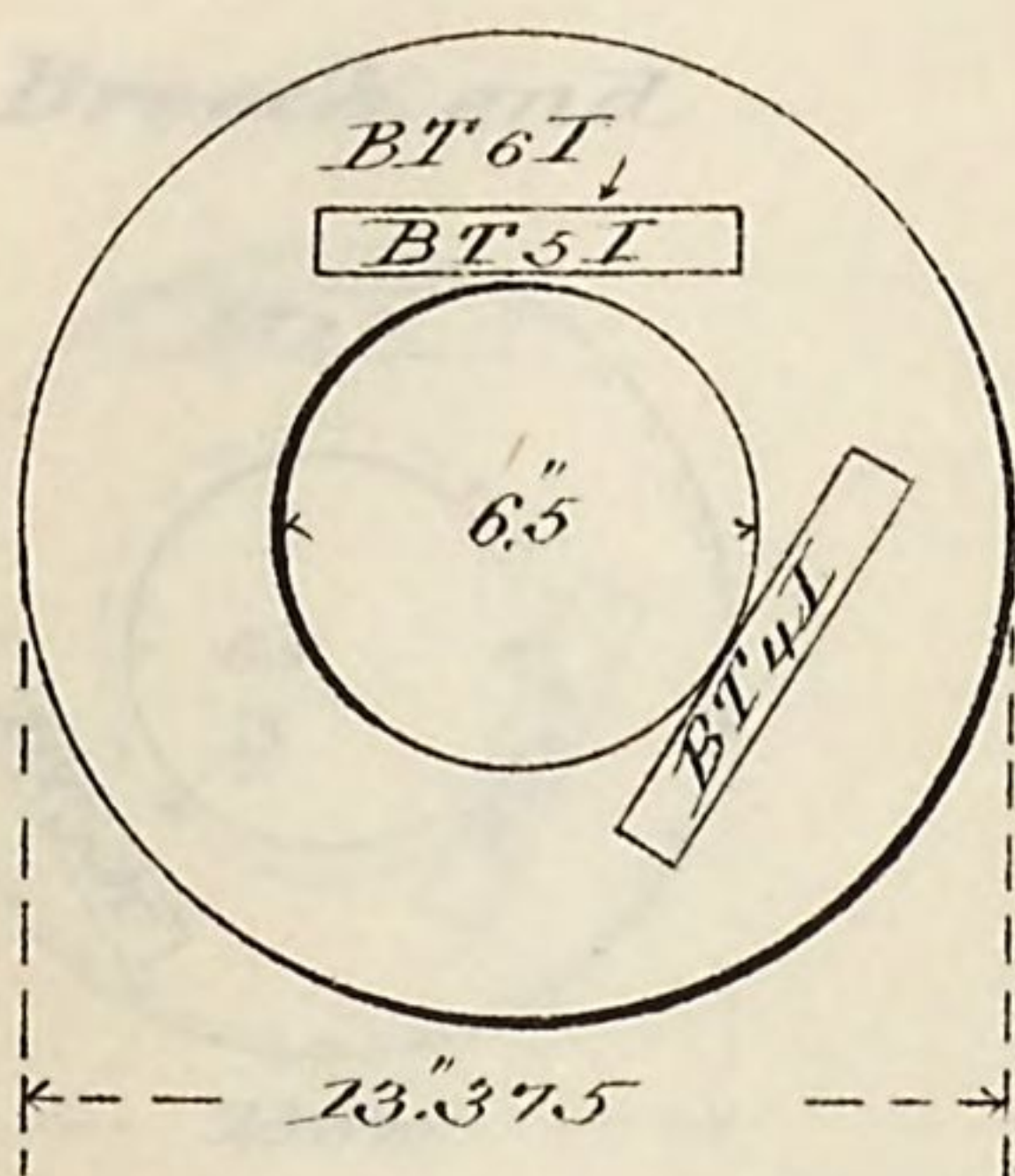
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Tube No. 7

8" converted Rifle

Additional specimens

*General drawing showing
positions from whence
specimens were taken.*



H Ex 3 / 49 2

SPECIMENS FROM STEEL TUBES FOR 8-INCH CONVERTED RIFLES.

No. 2341.

Marks, $\frac{8}{B} \frac{T_7}{T_4 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034			Elastic limit.
9,500	38,000	.009000	.007833	.....	.....	
9,750	39,000	.011700	.002700	.....	.....	
10,000	40,000	.012667	.000967	.....	.....	
10,250	41,000	.013833	.001166	.....	.....	
10,500	42,000	.015167	.001334	.....	.....	
10,750	43,000	.016333	.001166	.....	.....	
11,000	44,000	.017667	.001334	.....	.....	
11,250	45,000	.018833	.001166	.....	.....	
11,500	46,000	.020400	.001567	.....	.....	
11,750	47,000	.021500	.001100	.....	.....	
12,000	48,000	.023733	.002233	.....	.....	
12,250	49,000	.025333	.001600	.....	.....	
12,500	50,000	.027067	.001734	.....	.....	
13,000	52,000	.030500	.003433	.....	.....	
13,500	54,000	.034667	.004167	.....	.....	
14,000	56,000	.039000	.004333	.....	.....	
14,500	58,000	.044667	.005667	.....	.....	
15,000	60,000	.050833	.006166			Tensile strength.
15,500	62,000	.058333	.007500	.....	.....	
16,000	64,000	.0667	.008367	.....	.....	
16,500	66,000	.0767	.0100	.....	.....	
17,000	68,000	.0933	.0166			
17,500	70,000	.1300	.0367			
17,680	70,720	.1700	.0400			

General summary.

Tensile strength per square inch of original section.....pounds.. 70,720
 Elastic limit per square inch of original section.....do... 37,000
 Elongation per inch after rupture.....inch.. 0.1800
 Elongation per inch under strain at elastic limit.....do... .001167
 Reduction in diameter at point of rupture.....do... .064
 Reduction in area after rupture, per centum of original section..... 21.4
 Position of rupture.....1".45 from neck
 Character of broken surface, granular; radiating from a defective spot at circumference; opened
 cracks in surface of stem.
 Elongation of inch sections.....".16, ".23*, ".15

No. 2342.

Marks, $\frac{8}{B} \frac{T_7}{T_5 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
7,750	31,000	.001033	.000033	.....	.....	
8,000	32,000	.001067	.000034	.....	.....	
8,250	33,000	.001100	.000033	.....	.....	
8,500	34,000	.001167	.000067	.....	.....	Elastic limit.
8,750	35,000	.008167	.007000	.....	.....	
9,000	36,000	.009333	.001166	.....	.....	
9,250	37,000	.010400	.001967	.....	.....	
9,500	38,000	.011333	.000933	.....	.....	
9,750	39,000	.012167	.000834	.....	.....	
10,000	40,000	.013667	.001500	.....	.....	
10,500	42,000	.015667	.002000	.....	.....	
11,000	44,000	.018333	.002666	.....	.....	
11,500	46,000	.021167	.002834	.....	.....	
12,000	48,000	.024033	.002866	.....	.....	
12,500	50,000	.027367	.003334	.....	.....	
13,000	52,000	.031100	.003733	.....	.....	
13,500	54,000	.035400	.004300	.....	.....	
14,000	56,000	.039667	.004267	.....	.....	
14,500	58,000	.044767	.005100	.....	.....	
15,000	60,000	.050700	.005933	.....	.....	
15,500	62,000	.0567	.0060	.....	.....	
16,000	64,000	.0667	.0100	.....	.....	
16,500	66,000	.0800	.0133	.....	.....	
17,000	68,000	.0967	.0167	.....	.....	
17,480	69,920	.....	.....	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	69,920
Elastic limit per square inch of original section	do...	34,000
Elongation per inch after rupture	inch..	0.1333
Elongation per inch under strain at elastic limit	do...	.001167
Reduction in diameter at point of rupture	do...	.054
Reduction in area after rupture, per centum of original section		18.3
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface, granular; defective spot near circumference; opened cracks in surface of stem.		
Elongation of inch sections	".11, ".13, ".16*	

No. 2343.

Marks, $\frac{8 T_7}{B T_6 1}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000633	.000133	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001100	.000133	C.	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034			Elastic limit.
9,500	38,000	.010167	.009000	.....	.....	
9,750	39,000	.011033	.000866	.....	.....	
10,000	40,000	.012067	.001034	.....	.....	
10,500	42,000	.014700	.002633	.....	.....	
11,000	44,000	.017400	.002700	.....	.....	
11,500	46,000	.020000	.002600	.....	.....	
12,000	48,000	.023333	.003333	.....	.....	
12,500	50,000	.026500	.003167	.....	.....	
13,000	52,000	.030000	.003500	.....	.....	
13,500	54,000	.034000	.004000			Tensile strength.
14,000	56,000	.038333	.004333	.....	.....	
14,500	58,000	.0433	.004967	.....	.....	
15,000	60,000	.0533	.0100	.....	.....	
15,500	62,000	.0600	.0067	.....	.....	
16,000	64,000	.0733	.0133			Tensile strength.
16,500	66,000	.0867	.0134	.....	.....	
17,000	68,000					

General summary.

Tensile strength per square inch of original section	pounds..	68,000
Elastic limit per square inch of original section	do...	37,000
Elongation per inch after rupture	inch..	0.1067
Elongation per inch under strain at elastic limit	do...	.001167
Reduction in diameter at point of rupture	do...	.044
Reduction in area after rupture, per centum of original section		15.0
Position of rupture	1".3 from neck	
Character of broken surface, granular; defective spot at circumference; opened crack in surface of stem.		
Elongation of inch sections	".09*, ".13*, ".10	

No. 2344.

Marks, ⁸T₇
M T₄ I
Diameter, ".564.
Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000267	.000134	0.	-----	
3,750	15,000	.000433	.000166	0.	-----	
5,000	20,000	.000567	.000134	0.	-----	
6,250	25,000	.000733	.000166	0.	-----	
7,500	30,000	.000900	.000167	.000033	.000033	
8,750	35,000	.001067	.000167	.000033	0.	
10,000	40,000	.001233	.000166	.000033	0.	
10,250	41,000	.001267	.000034	-----	-----	Elastic limit.
10,500	42,000	.011700	.010433	-----	-----	
10,750	43,000	.012167	.000467	-----	-----	
11,000	44,000	.013167	.001000	-----	-----	
11,250	45,000	.014000	.000833	-----	-----	
11,500	46,000	.015033	.001033	-----	-----	
11,750	47,000	.016000	.000967	-----	-----	
12,000	48,000	.017367	.001367	-----	-----	
12,250	49,000	.018167	.000800	-----	-----	
12,500	50,000	.019333	.001166	-----	-----	
13,000	52,000	.022033	.002700	-----	-----	
13,500	54,000	.025000	.002967	-----	-----	
14,000	56,000	.027667	.002667	-----	-----	
14,500	58,000	.030733	.003066	-----	-----	
15,000	60,000	.034167	.003434	-----	-----	
15,500	62,000	.038100	.003933	-----	-----	Tensile strength.
16,000	64,000	.042667	.004567	-----	-----	
16,500	66,000	.048000	.005333	-----	-----	
17,000	68,000	.053333	.005333	-----	-----	
17,500	70,000	.0600	.006667	-----	-----	
18,000	72,000	.0667	.0067	-----	-----	
18,500	74,000	.0800	.0133	-----	-----	
19,000	76,000	.1000	.0200	-----	-----	
19,500	78,000	.1233	.0233	-----	-----	
19,720	78,880	.1900	.0667	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	78,880
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch..	0.2600
Elongation per inch under strain at elastic limit	do...	.001267
Reduction in diameter at point of rupture	do...	.144
Reduction of area after rupture, per centum of original section		44.6
Position of rupture	" .90 from neck	
Character of broken surface	silky	
Elongation of inch sections	" .40*, ".20, ".18	

No. 2346.

Marks, $\frac{8}{M} \frac{T_7}{T_5} O$
Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000467	.000134	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001100	.000133	0.	.....	
9,500	38,000	.001233	.000133	.....	.....	
9,750	39,000	.001300	.000067			Elastic limit.
10,000	40,000	.010000	.008700	.....	.....	
10,250	41,000	.010733	.000733	.....	.....	
10,500	42,000	.011800	.001067	.....	.....	
10,750	43,000	.012700	.000900	.....	.....	
11,000	44,000	.013600	.000900	.....	.....	
11,250	45,000	.014500	.000900	.....	.....	
11,500	46,000	.015733	.001233	.....	.....	
11,750	47,000	.016767	.001034	.....	.....	
12,000	48,000	.018000	.001233	.....	.....	
12,250	49,000	.019000	.001000	.....	.....	
12,500	50,000	.020400	.001400	.....	.....	
13,000	52,000	.023167	.002767	.....	.....	
13,500	54,000	.026333	.003166	.....	.....	
14,000	56,000	.029500	.003167	.....	.....	
14,500	58,000	.033333	.003833	.....	.....	
15,000	60,000	.037167	.003834	.....	.....	
15,500	62,000	.041433	.004266	.....	.....	
16,000	64,000	.047000	.005567	.....	.....	
16,500	66,000	.053333	.006333	.....	.....	
17,000	68,000	.060000	.006667	.....	.....	
17,500	70,000	.070000	.010000	.....	.....	
18,000	72,000	.0833	.0133	.....	.....	
18,500	74,000	.1000	.0167	.....	.....	
19,000	76,000	.1367	.0367	.....	.....	
19,110	76,440	.1733	.0366			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	76,440
Elastic limit per square inch of original section	do...	39,000
Elongation per inch after rupture	inch..	0.2700
Elongation per inch under strain at elastic limit	do...	.001300
Reduction in diameter at point of rupture	do...	.164
Reduction in area after rupture, per centum of original section		49.7
Position of rupture	1".55 from neck	
Character of broken surface	silky	
Elongation of inch sections	".16, ".42* ".23	

No. 2345.

Marks, ^{8 T,}_{M T₆ M}
Diameter, ".564.
Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000300	.000133	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034			Elastic limit.
9,500	38,000	.005333	.004166	.....	.....	
9,750	39,000	.008067	.002734	.....	.....	
10,000	40,000	.009167	.001100	.....	.....	
10,500	42,000	.011000	.001833	.....	.....	
11,000	44,000	.012833	.001833	.....	.....	
11,500	46,000	.014833	.002000	.....	.....	
12,000	48,000	.017000	.002167	.....	.....	
12,500	50,000	.019000	.002000	.....	.....	
13,000	52,000	.021500	.002500	.....	.....	
13,500	54,000	.024000	.002500			Tensile strength.
14,000	56,000	.026833	.002833	.....	.....	
14,500	58,000	.030000	.003167	.....	.....	
15,000	60,000	.033500	.003500	.....	.....	
15,500	62,000	.037667	.004167	.....	.....	
16,000	64,000	.041667	.004000	.....	.....	
16,500	66,000	.046833	.005166	.....	.....	
17,000	68,000	.052667	.005834	.....	.....	
17,500	70,000	.059333	.006666	.....	.....	
18,000	72,000	.0667	.007367	.....	.....	
18,500	74,000	.0767	.0100	.....	.....	
19,000	76,000	.0933	.0166	.....	.....	
19,500	78,000	.1200	.0267	.....	.....	
19,790	79,160	.1667	.0467	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	79,160
Elastic limit per square inch of original section	do...	37,000
Elongation per inch after rupture	inch..	0.2367
Elongation per inch under strain at elastic limit	do...	.001167
Reduction in diameter at point of rupture	do...	.144
Reduction in area after rupture, per centum of original section		44.6
Position of rupture	".85 from neck	
Character of broken surface	silky	
Elongation of inch sections	".36*, ".21, ".14	

NEW TUBE No. 7.

No. 2662.

Marks, ^{8 Cn R₇ T}
_{B T₇ I}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000467	.000200	0.	.....	
5,000	20,000	.000567	.000100	0.	.....	
6,250	25,000	.000767	.000200	0.	.....	
7,500	30,000	.000900	.000133	0.	.....	
7,750	31,000	.000933	.000033	.....	.....	
8,000	32,000	.001000	.000067	.....	.....	
8,250	33,000	.001100	.000100	.....	.....	Elastic limit.
8,500	34,000	.001167	.000067	.....	.....	
		.004333	.003166	.....	.....	
8,750	35,000	.004867	.000534	.....	.....	
9,000	36,000	.005667	.000800	.....	.....	
9,250	37,000	.006333	.000666	.....	.....	
9,500	38,000	.007500	.001167	.....	.....	
9,750	39,000	.008500	.001000	.....	.....	
10,000	40,000	.009667	.001167	.....	.....	
10,250	41,000	.010667	.001000	.....	.....	
10,500	42,000	.011833	.001166	.....	.....	
10,750	43,000	.013000	.001167	.....	.....	
11,000	44,000	.014500	.001500	.....	.....	
11,250	45,000	.015667	.001167	.....	.....	
11,500	46,000	.017000	.001333	.....	.....	
11,750	47,000	.018333	.001333	.....	.....	
12,000	48,000	.020000	.001667	.....	.....	
12,250	49,000	.021333	.001333	.....	.....	
12,500	50,000	.023333	.002000	.....	.....	
13,000	52,000	.027000	.003667	.....	.....	
13,500	54,000	.031000	.004000	.....	.....	
14,000	56,000	.035667	.004667	.....	.....	
14,500	58,000	.040667	.005000	.....	.....	
15,000	60,000	.0500	.009333	.....	.....	
15,500	62,000	.0600	.0100	.....	.....	
16,000	64,000	.0700	.0100	.....	.....	
16,500	66,000	.0800	.0100	.....	.....	
17,000	68,000	.1033	.0233	.....	.....	
17,500	70,000	.1567	.0534	.....	.....	
17,570	70,280	.1933	.0366	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	70,280
Elastic limit per square inch of original section	do...	33,000
Elongation per inch after rupture	inch..	0.2667
Elongation per inch under strain at elastic limit	do...	.001100
Reduction in diameter at point of rupture	do...	.164
Reduction in area after rupture, per centum of original section		49.7
Position of rupture	".20 from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".16, ".47*, ".17	

H. Ex. 31—39

No. 2663.

Marks, ^{8 Cn R, T}
B T, O

Diameter, ".563.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000167	.000134	0.	.....	
5,000	20,000	.000567	.000200	0.	.....	
6,250	25,000	.000800	.000133	0.	.....	
7,500	30,000	.001000	.000200	0.	.....	
7,750	31,000	.001033	.000033	.....	.....	
8,000	32,000	.001067	.000034	.....	.....	
8,250	33,000	.001133	.000066	.....	.....	Elastic limit.....
8,500	34,000	.002333	.001200	.....	.....	
8,750	35,000	.003367	.001034	.....	.....	
9,000	36,000	.003733	.000366	.....	.....	
9,250	37,000	.004267	.000534	.....	.....	
9,500	38,000	.005167	.000900	.....	.....	
9,750	39,000	.005933	.000766	.....	.....	
10,000	40,000	.007000	.001067	.....	.....	
10,250	41,000	.008000	.001000	.....	.....	
10,500	42,000	.009000	.001000	.....	.....	
10,750	43,000	.010000	.001000	.....	.....	
11,000	44,000	.011000	.001000	.....	.....	
11,250	45,000	.012167	.001167	.....	.....	
11,500	46,000	.013333	.001166	.....	.....	
11,750	47,000	.014667	.001334	.....	.....	
12,000	48,000	.015833	.001166	.....	.....	
12,250	49,000	.016833	.001000	.....	.....	
12,500	50,000	.018333	.001500	.....	.....	
13,000	52,000	.021667	.003334	.....	.....	
13,500	54,000	.025000	.003333	.....	.....	
14,000	56,000	.028333	.003333	.....	.....	
14,500	58,000	.032333	.004000	.....	.....	
15,000	60,000	.037000	.004667	.....	.....	
15,500	62,000	.042500	.005500	.....	.....	
16,000	64,000	.0533	.0118	.....	.....	
16,500	66,000	.0600	.0067	.....	.....	
17,000	68,000	.0667	.0067	.....	.....	
17,500	70,000	.0867	.0200	.....	.....	
18,000	72,000	.1100	.0233	.....	.....	
18,490	73,960	.1700	.0600	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	73,960
Elastic limit per square inch of original section.....	do...	33,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do...	.001133
Reduction in diameter at point of rupture.....	do...	.094
Reduction in area after rupture, per centum of original section.....		30.6
Position of rupture.....		".68 from neck
Character of broken surface.....	silky, flaky; opened small cracks in surface of stem	
Elongation of inch sections.....		".29*, ".17, ".14

No. 2664.

Marks, ^{8 Cn R₇ T}
_{B T₉ M}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000533	.000200	0.	.....	
5,000	20,000	.000667	.000134	0.	.....	
6,250	25,000	.000800	.000133	0.	.....	
7,500	30,000	.001000	.000200	0.	.....	
7,750	31,000	.001067	.000067			Elastic limit.
8,000	32,000	.001167	.000100	.....	.....	
8,250	33,000	.003667	.002500	.....	.....	
8,500	34,000	.004667	.001000	.....	.....	
8,750	35,000	.005300	.000633	.004000	.004000	
9,000	36,000	.005700	.000400	.....	.....	
9,250	37,000	.006133	.000633	.....	.....	
9,500	38,000	.007333	.001000	.....	.....	
9,750	39,000	.008667	.001334	.....	.....	
10,000	40,000	.010000	.001333	.....	.....	
10,250	41,000	.010833	.000833	.....	.....	
10,500	42,000	.011667	.000834	.....	.....	
10,750	43,000	.012667	.001000	.....	.....	
11,000	44,000	.014167	.001500	.....	.....	
11,250	45,000	.015500	.001333	.....	.....	
11,500	46,000	.016833	.001333	.....	.....	
11,750	47,000	.018000	.001167	.....	.....	
12,000	48,000	.019833	.001833	.....	.....	
12,500	50,000	.022667	.002834	.....	.....	
13,000	52,000	.026333	.003666	.....	.....	
13,500	54,000	.030000	.003667	.....	.....	
14,000	56,000	.034667	.004667	.....	.....	
14,500	58,000	.039000	.004333	.....	.....	
15,000	60,000	.0467	.0077	.....	.....	
15,500	62,000	.0567	.0100	.....	.....	
16,000	64,000	.0667	.0160	.....	.....	
16,500	66,000	.0733	.0066	.....	.....	
17,000	68,000	.0933	.0200	.....	.....	
17,500	70,000	.1233	.0300	.....	.....	
17,880	71,520	.1900	.0667			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	71,520
Elastic limit per square inch of original section.....	do...	32,000
Elongation per inch after rupture.....	inch..	0.2600
Elongation per inch under strain at elastic limit.....	do...	.001167
Reduction in diameter at point of rupture.....	do...	.114
Reduction in area after rupture, per centum of original section.....	.....	36.4
Position of rupture.....	1/4 inch from middle of stem	
Character of broken surface.....	silky; opened cracks in surface of stem	
Elongation of inch sections.....	".21" ".40" ".17	

No. 2665.

Marks, ^{8 Cn R₇ T}
_{M T₇ I}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000267	.000100	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000600	.000200	0.	.....	
6,250	25,000	.000733	.000133	0.	.....	
7,500	30,000	.000933	.000200	— .000067	— .000067	
7,750	31,000	.000967	.000034	.....	.....	
8,000	32,000	.000967	0.	.....	.....	
8,250	33,000	.001000	.000033	.....	.....	
8,500	34,000	.001033	.000033			Elastic limit.
8,750	35,000	.001100	.000067	— .000067	0.	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001200	.000067	.....	.....	
9,500	38,000	.001267	.000067	.....	.....	
9,750	39,000	.001333	.000066	.....	.....	
10,000	40,000	.002533	.001200	.....	.....	
10,250	41,000	.002933	.000400	.....	.....	
10,500	42,000	.004100	.001167	.....	.....	
10,750	43,000	.005100	.001000	.....	.....	
11,000	44,000	.006500	.001400	.....	.....	
11,250	45,000	.007500	.001000	.....	.....	
11,500	46,000	.008500	.001000	.....	.....	
11,750	47,000	.009667	.001167	.....	.....	
12,000	48,000	.010883	.001166	.....	.....	
12,250	49,000	.012000	.001167	.....	.....	
12,500	50,000	.013000	.001000	.....	.....	
13,000	52,000	.015667	.002667	.....	.....	
13,500	54,000	.018333	.002666	.....	.....	
14,000	56,000	.020667	.002334	.....	.....	
14,500	58,000	.024333	.003666	.....	.....	
15,000	60,000	.027667	.003334	.....	.....	
15,500	62,000	.031333	.003666	.....	.....	
16,000	64,000	.035667	.004334	.....	.....	
16,500	66,000	.040333	.004666	.....	.....	
17,000	68,000	.0467	.006367	.....	.....	
17,500	70,000	.0600	.0133	.....	.....	
18,000	72,000	.0667	.0067	.....	.....	
18,500	74,000	.0833	.0166	.....	.....	
19,000	76,000	.1000	.0167	.....	.....	
19,420	77,680	.1667	.0667			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	77,680
Elastic limit per square inch of original section	do...	39,000
Elongation per inch after rupture	inch..	0.2267
Elongation per inch under strain at elastic limit	do...	.001333
Reduction in diameter at point of rupture	do...	.144
Reduction in area after rupture, per centum of original section		44.6
Position of rupture	1".20 from neck	
Character of broken surface	silky	
Elongation of inch sections	".13, ".22, ".33*	

No. 2666.

Marks, ^{8 Cn R₇ T}
_{M T₈ O}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	-----	
2,500	10,000	.000300	.000133	0.	-----	
3,750	15,000	.000500	.000200	0.	-----	
5,000	20,000	.000600	.000100	0.	-----	
6,250	25,000	.000800	.000200	0.	-----	
7,500	30,000	.000967	.000167	0.	-----	
8,750	35,000	.001167	.000200	0.	-----	
9,000	36,000	.001233	.000066	-----	-----	
9,250	37,000	.001267	.000034	-----	-----	Elastic limit.
9,500	38,000	.001433	.000166	-----	-----	
9,750	39,000	.001533	.000100	-----	-----	
10,000	40,000	.001767	.000234	.000567	.000567	
10,250	41,000	.002933	.001266	-----	-----	
10,500	42,000	.003333	.000400	-----	-----	
10,750	43,000	.004167	.000834	-----	-----	
11,000	44,000	.005333	.001166	-----	-----	
11,250	45,000	.006333	.001000	-----	-----	
11,500	46,000	.007667	.001334	-----	-----	
11,750	47,000	.008667	.001000	-----	-----	
12,000	48,000	.009333	.000666	-----	-----	
12,250	49,000	.010333	.001000	-----	-----	
12,500	50,000	.011667	.001334	-----	-----	
13,000	52,000	.014000	.002333	-----	-----	
13,500	54,000	.016333	.002333	-----	-----	
14,000	56,000	.019000	.002667	-----	-----	
14,500	58,000	.022000	.003000	-----	-----	
15,000	60,000	.025000	.003000	-----	-----	
15,500	62,000	.028333	.003333	-----	-----	
16,000	64,000	.032333	.004000	-----	-----	
16,500	66,000	.036500	.004167	-----	-----	
17,000	68,000	.0433	.0068	-----	-----	
17,500	70,000	.0500	.0067	-----	-----	
18,000	72,000	.0600	.0100	-----	-----	
18,500	74,000	.0667	.0067	-----	-----	
19,000	76,000	.0833	.0166	-----	-----	
19,500	78,000	.1133	.0300	-----	-----	
19,550	78,200	.1333	.0200	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	78,200
Elastic limit per square inch of original section.....	do...	37,000
Elongation per inch after rupture.....	inch..	0.2067
Elongation per inch under strain at elastic limit.....	do...	.001267
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....	".35 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".11, ".36*, ".15	

No. 2667.

Marks, ^{8 C_U R₇ T}
_{M T₉ M}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000433	.000100	0.	.....	
5,000	20,000	.000667	.000234	0.	.....	
6,250	25,000	.000733	.000066	0.	.....	
7,500	30,000	.001000	.000267	0.	.....	
8,750	35,000	.001133	.000133	0.	.....	
9,000	36,000	.001200	.000067	.....	.....	
9,250	37,000	.001267	.000067	.....	.....	
9,500	38,000	.001333	.000066	.....	.....	Elastic limit.
9,750	39,000	.001700	.000367	.....	.....	
10,000	40,000	.002667	.000967	.....	.....	
10,250	41,000	.003367	.000700	.....	.....	
10,500	42,000	.004667	.001300	.....	.....	
10,750	43,000	.005667	.001000	.....	.....	
11,000	44,000	.006833	.001166	.....	.....	
11,250	45,000	.008000	.001167	.....	.....	
11,500	46,000	.008833	.000833	.....	.....	
11,750	47,000	.009833	.001000	.....	.....	
12,000	48,000	.011433	.001600	.....	.....	
12,250	49,000	.012333	.000900	.....	.....	
12,500	50,000	.013467	.001134	.....	.....	
13,000	52,000	.015733	.002266	.....	.....	
13,500	54,000	.018333	.002600	.....	.....	
14,000	56,000	.021000	.002667	.....	.....	
14,500	58,000	.024333	.003333	.....	.....	
15,000	60,000	.027733	.003400	.....	.....	
15,500	62,000	.031500	.003767	.....	.....	
16,000	64,000	.035667	.004167	.....	.....	
16,500	66,000	.040167	.004500	.....	.....	
17,000	68,000	.0533	.003133	.....	.....	
17,500	70,000	.0600	.0067	.....	.....	
18,000	72,000	.0667	.0067	.....	.....	
18,500	74,000	.0833	.0166	.....	.....	
19,000	76,000	.1000	.0167	.....	.....	
19,380	77,520	.1400	.0400	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	77,520
Elastic limit per square inch of original section	do...	38,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit	do...	.001333
Reduction in diameter at point of rupture	do...	.134
Reduction in area after rupture, per centum of original section		41.9
Position of rupture	".37 from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".11, .31, ".18	

No. 2779.

Marks, $\frac{1}{2}$ inch
Diameter, 1.263
Sectional area, .25 square inch

Applied loads		Elongation per inch	Permanent set	Residual stress	Remarks
Total	Per square inch				
100	1.00				
200	2.00				
300	3.00				
400	4.00				
500	5.00				
600	6.00				
700	7.00				
800	8.00				
900	9.00				
1000	10.00				
1100	11.00				
1200	12.00				
1300	13.00				
1400	14.00				
1500	15.00				
1600	16.00				
1700	17.00				
1800	18.00				
1900	19.00				
2000	20.00				
2100	21.00				
2200	22.00				
2300	23.00				
2400	24.00				
2500	25.00				
2600	26.00				
2700	27.00				
2800	28.00				
2900	29.00				
3000	30.00				
3100	31.00				
3200	32.00				
3300	33.00				
3400	34.00				
3500	35.00				
3600	36.00				
3700	37.00				
3800	38.00				
3900	39.00				
4000	40.00				
4100	41.00				
4200	42.00				
4300	43.00				
4400	44.00				
4500	45.00				
4600	46.00				
4700	47.00				
4800	48.00				
4900	49.00				
5000	50.00				
5100	51.00				
5200	52.00				
5300	53.00				
5400	54.00				
5500	55.00				
5600	56.00				
5700	57.00				
5800	58.00				
5900	59.00				
6000	60.00				
6100	61.00				
6200	62.00				
6300	63.00				
6400	64.00				
6500	65.00				
6600	66.00				
6700	67.00				
6800	68.00				
6900	69.00				
7000	70.00				
7100	71.00				
7200	72.00				
7300	73.00				
7400	74.00				
7500	75.00				
7600	76.00				
7700	77.00				
7800	78.00				
7900	79.00				
8000	80.00				
8100	81.00				
8200	82.00				
8300	83.00				
8400	84.00				
8500	85.00				
8600	86.00				
8700	87.00				
8800	88.00				
8900	89.00				
9000	90.00				
9100	91.00				
9200	92.00				
9300	93.00				
9400	94.00				
9500	95.00				
9600	96.00				
9700	97.00				
9800	98.00				
9900	99.00				
10000	100.00				

New Table No. 7 & converted Table

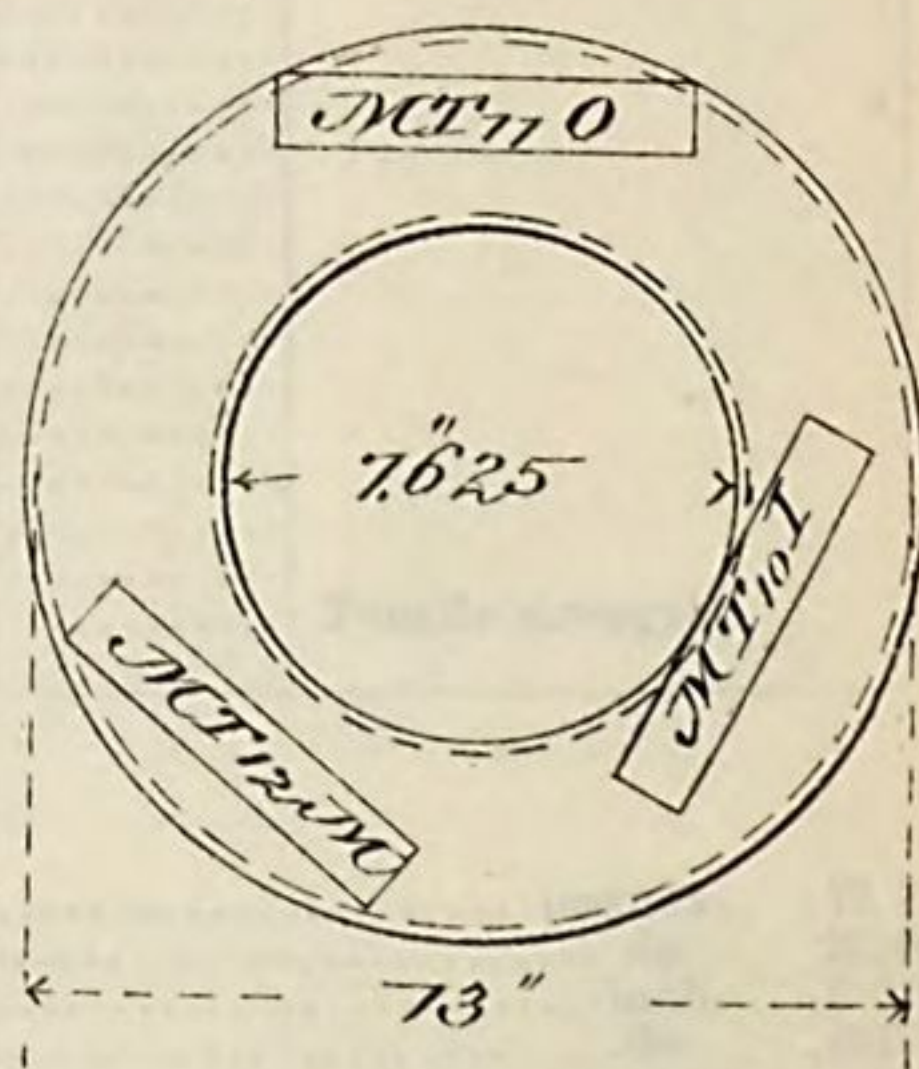
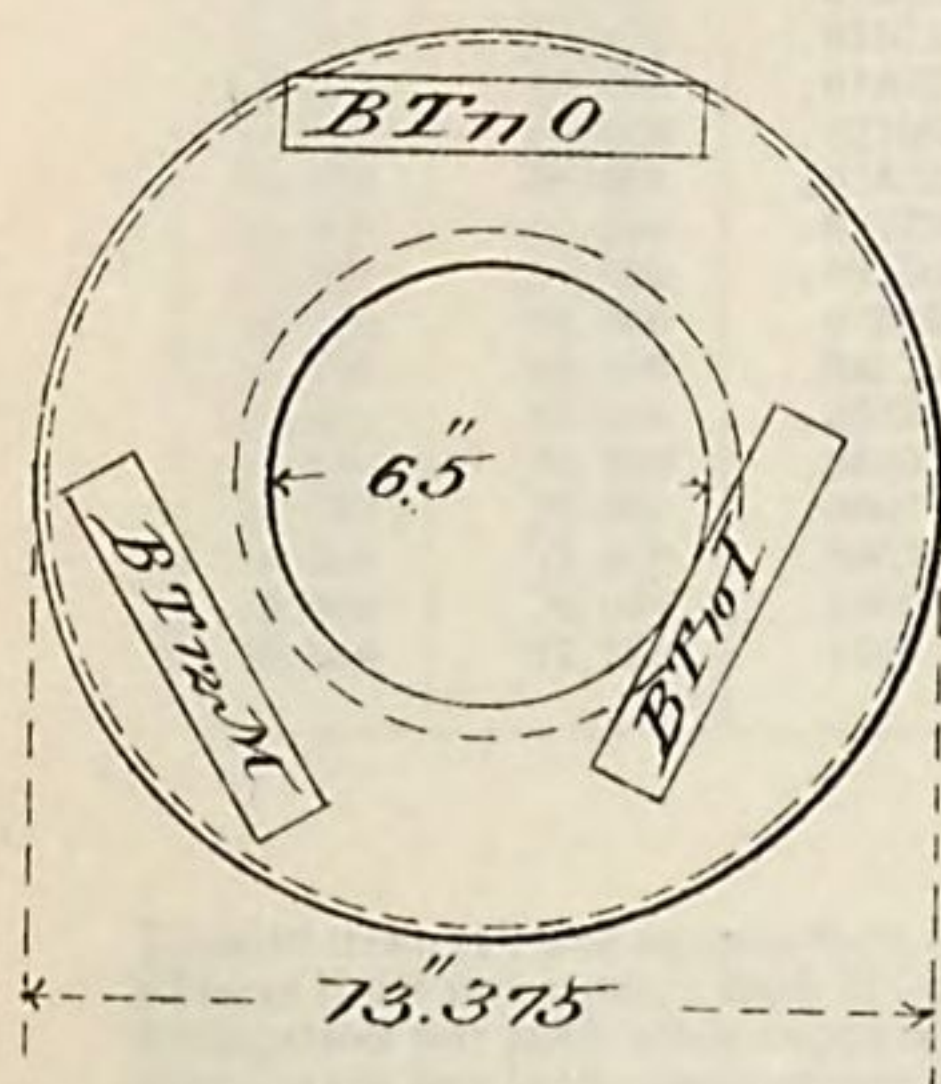
Additional Specimens



H Ex 31 49 2

New Tube No. 7 8" converted Rifle

Additional specimens



H Ex 3/ 49 2

No. 2779.

Marks, ^{8 Cn R₇ T}
_{B T₁₀ I}

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000200	.000200	0.	.....	
2,500	10,000	.000433	.000233	0.	.....	
3,750	15,000	.000633	.000200	0.	.....	
5,000	20,000	.000767	.000134	0.	.....	
6,250	25,000	.000933	.000166	0.	.....	
7,500	30,000	.001100	.000167	0.	.....	
8,750	35,000	.001267	.000167	0.	.....	
9,000	36,000	.001300	.000033	.....	.....	
9,250	37,000	.001300	0.			Elastic limit.
9,500	38,000	.001333	.000033	.....	.....	
9,750	39,000	.001367	.000034	.....	.....	
10,000	40,000	.001433	.000066	.....	.....	
10,250	41,000	.001533	.000100	.....	.....	
10,500	42,000	.001767	.000234	.....	.....	
10,750	43,000	.002200	.000433	.....	.....	
11,000	44,000	.002700	.000500	.....	.....	
11,250	45,000	.003100	.000400	.....	.....	
11,500	46,000	.003800	.000700	.....	.....	
11,750	47,000	.004533	.000733	.....	.....	
12,000	48,000	.005400	.000867	.....	.....	
12,250	49,000	.006100	.000700	.....	.....	
12,500	50,000	.007300	.001200	.....	.....	
13,000	52,000	.009500	.002200			Tensile strength.
13,500	54,000	.012000	.002500	.....	.....	
14,000	56,000	.014500	.002500	.....	.....	
14,500	58,000	.016800	.002300	.....	.....	
15,000	60,000	.019567	.002767	.....	.....	
15,500	62,000	.022667	.003100	.....	.....	
16,000	64,000	.026000	.003333	.....	.....	
16,500	66,000	.029760	.003700	.....	.....	
17,000	68,000	.034500	.004800	.....	.....	
17,500	70,000	.038667	.004167	.....	.....	
18,000	72,000	.044367	.005700			
18,500	74,000	.050833	.006466	.....	.....	
19,000	76,000	.0567	.005867	.....	.....	
19,500	78,000	.0700	.0133	.....	.....	
20,000	80,000	.0900	.0200	.....	.....	
20,200	80,800	.1400	.0500			

General summary.

Tensile strength per square inch of original section.....	pounds..	80,800
Elastic limit per square inch of original section.....	do...	40,000
Elongation per inch after rupture	inch..	0.1800
Elongation per inch under strain at elastic limit	do...	.001433
Reduction in diameter at point of rupture	do...	.125
Reduction in area after rupture, per centum of original section		39.2
Position of rupture	1" 10 from neck	
Character of broken surface.....	silky, flaky; opened fine cracks in surface of stem	
Elongation of inch sections	".10. ".16. ".28*	

No. 2780.

Marks, $\begin{smallmatrix} 8 & C_n & R_7 & T \\ & B & T_{11} & O \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001167	.000200	0.	.....	
10,000	40,000	.001333	.000166	.....	.....	
10,250	41,000	.001400	.000067			Elastic limit.
10,500	42,000	.001433	.000033	.....	.....	
10,750	43,000	.001500	.000067	.....	.....	
11,000	44,000	.001733	.000233	.....	.....	
11,250	45,000	.002100	.000367	.....	.....	
11,500	46,000	.002700	.000600	.....	.....	
11,750	47,000	.003167	.000467	.....	.....	
12,000	48,000	.003800	.000633	.....	.....	
12,250	49,000	.004467	.000667	.....	.....	
12,500	50,000	.005433	.000966	.....	.....	
13,000	52,000	.007233	.001800	.....	.....	
13,500	54,000	.009433	.002200	.....	.....	
14,000	56,000	.011400	.001967	.....	.....	
14,500	58,000	.013733	.002333	.....	.....	
15,000	60,000	.016100	.002367	.....	.....	
15,500	62,000	.018667	.002567	.....	.....	
16,000	64,000	.021433	.002766	.....	.....	
16,500	66,000	.024667	.003234	.....	.....	
17,000	68,000	.027700	.003033	.....	.....	
17,500	70,000	.031667	.003967	.....	.....	
18,000	72,000	.035500	.003833	.....	.....	
18,500	74,000	.040000	.004500	.....	.....	
19,000	76,000	.045833	.005833	.....	.....	
19,500	78,000	.052333	.006500	.....	.....	
20,000	80,000	.0600	.007667	.....	.....	
20,500	82,000	.0733	.0133	.....	.....	
21,000	84,000	.0933	.0200	.....	.....	
21,210	84,840	.1333	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	34,840
Elastic limit per square inch of original section	do...	43,000
Elongation per inch after rupture	inch..	0.1867
Elongation per inch under strain at elastic limit	do...	.001500
Reduction in diameter at point of rupture	do...	.144
Reduction in area after rupture, per centum of original section		44.6
Position of rupture	".65 from neck	
Character of broken surface	silky	
Elongation of inch sections	".09, ".12, ".35*	

No. 2781.

Marks, $\frac{8}{B} \frac{Cn}{T_{12}} \frac{R_7}{M}$
 Diameter, $\frac{1}{2}$ inch.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001200	.000200	0.	.....	
9,000	36,000	.001233	.000033	.....	.....	
9,250	37,000	.001300	.000067			Elastic limit.
9,500	38,000	.001400	.000100	.....	.....	
9,750	39,000	.001933	.000533	.....	.....	
10,000	40,000	.003233	.001300	.....	.....	
10,250	41,000	.003967	.000734	.....	.....	
10,500	42,000	.005000	.001033	.....	.....	
10,750	43,000	.005733	.000733	.....	.....	
11,000	44,000	.006733	.001000	.....	.....	
11,250	45,000	.007667	.000934	.....	.....	
11,500	46,000	.008667	.001000	.....	.....	
11,750	47,000	.009633	.000966	.....	.....	
12,000	48,000	.010867	.001234	.....	.....	
12,250	49,000	.011867	.001000	.....	.....	
12,500	50,000	.013200	.001333	.....	.....	
13,000	52,000	.015833	.002633	.....	.....	
13,500	54,000	.019000	.003167			Tensile strength.
14,000	56,000	.021467	.002467	.....	.....	
14,500	58,000	.024667	.003200	.....	.....	
15,000	60,000	.028200	.003533	.....	.....	
15,500	62,000	.032333	.004133	.....	.....	
16,000	64,000	.036833	.004500	.....	.....	
16,500	66,000	.042167	.005334	.....	.....	
17,000	68,000	.048000	.005833			
17,500	70,000	.055333	.007333	.....	.....	
18,000	72,000	.0633	.007967	.....	.....	
18,500	74,000	.0767	.0134	.....	.....	
19,000	76,000	.1067	.0300	.....	.....	
19,140	76,560	.1367	.0300			

General summary.

Tensile strength per square inch of original section.....	pounds..	76,560
Elastic limit per square inch of original section.....	do...	38,000
Elongation per inch after rupture.....	inch..	0.2033
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....		1".20 from neck
Character of broken surface.....		silky; opened cracks in surface of stem
Elongation of inch sections.....		".09, ".25, ".27*

No. 2782.

Marks, $\begin{smallmatrix} 8\text{ Cn R}_7\text{ T} \\ \text{M T}_{10}\text{ I} \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	.....	.....	
2,500	10,000	.000300	.000167	.....	.....	
3,750	15,000	.000467	.000167	.....	.....	
5,000	20,000	.000633	.000166	.....	.....	
6,250	25,000	.000800	.000167	.....	.....	
7,500	30,000	.000967	.000167	.....	.....	
8,750	35,000	.001133	.000166	.....	.....	
10,000	40,000	.001300	.000167	.....	.....	
10,250	41,000	.001333	.000033	.....	.....	
10,500	42,000	.001367	.000034	.....	.....	
10,750	43,000	.001367	0.	.....	.....	
11,000	44,000	.001400	.000033	.....	.....	
11,250	45,000	.001433	.000033	.....	.....	
11,500	46,000	.001533	.000100	.....	.....	Elastic limit.
11,750	47,000	.002233	.000700	.....	.....	
12,000	48,000	.004033	.001800	.....	.....	
12,250	49,000	.005000	.000967	.....	.....	
12,500	50,000	.006400	.001400	.....	.....	
13,000	52,000	.008933	.002533	.....	.....	
13,500	54,000	.011500	.002567	.....	.....	
14,000	56,000	.014000	.002500	.....	.....	
14,500	58,000	.016167	.002167	.....	.....	
15,000	60,000	.018833	.002666	.....	.....	
15,500	62,000	.021333	.002500	.....	.....	
16,000	64,000	.024167	.002834	.....	.....	
16,500	66,000	.027667	.003500	.....	.....	
17,000	68,000	.031000	.003333	.....	.....	
17,500	70,000	.035500	.004500	.....	.....	
18,000	72,000	.040333	.004833	.....	.....	
18,500	74,000	.045667	.005334	.....	.....	
19,000	76,000	.054000	.008333	.....	.....	
19,500	78,000	.060333	.006333	.....	.....	
20,000	80,000	.0700	.009667	.....	.....	
20,500	82,000	.1000	.0300	.....	.....	
20,700	82,800	.1300	.0300	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	82,800
Elastic limit per square inch of original section.....	do ..	46,000
Elongation per inch after rupture.....	inch..	0.2033
Elongation per inch under strain at elastic limit.....	do....	.001533
Reduction in diameter at point of rupture.....	do....	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	1".25 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".22*, ".28*, ".11	

No. 2783.

Marks, $\begin{smallmatrix} 8 & C_n & R_7 & T \\ M & T_n & O \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001033	.000200	0.	.....	
8,750	35,000	.001200	.000167	0.	.....	
9,000	36,000	.001233	.000033	.....	.....	
9,250	37,000	.001300	.000067	.....	.....	
9,500	38,000	.001333	.000033			Elastic limit.
9,750	39,000	.001367	.000034	.....	.....	
10,000	40,000	.001400	.000033	.....	.....	
10,250	41,000	.001467	.000067	.....	.....	
10,500	42,000	.002533	.001066	.....	.....	
10,750	43,000	.003900	.001367	.....	.....	
11,000	44,000	.006000	.002100	.....	.....	
11,250	45,000	.007333	.001333	.....	.....	
11,500	46,000	.008100	.000767	.....	.....	
11,750	47,000	.008833	.000733	.....	.....	
12,000	48,000	.010333	.001500	.....	.....	
12,250	49,000	.011333	.001000	.....	.....	
12,500	50,000	.012600	.001267	.....	.....	
13,000	52,000	.014500	.001900	.....	.....	
13,500	54,000	.017167	.002667	.....	.....	
14,000	56,000	.020167	.003000	.....	.....	
14,500	58,000	.023333	.003166	.....	.....	
15,000	60,000	.026167	.002834	.....	.....	
15,500	62,000	.029667	.003500	.....	.....	
16,000	64,000	.033233	.003566	.....	.....	
16,500	66,000	.038000	.004767	.....	.....	
17,000	68,000	.043167	.005167	.....	.....	
17,500	70,000	.049667	.006500	.....	.....	
18,000	72,000	.056933	.007266	.....	.....	
18,500	74,000	.0667	.009767	.....	.....	
19,000	76,000	.0833	.0166	.....	.....	
19,500	78,000	.1100	.0267	.....	.....	
19,590	78,360	.1367	.0267			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	78,360
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.1967
Elongation per inch under strain at elastic limit.....	do...	.001467
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....	.....	44.6
Position of rupture.....	".45 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".10, ".13, ".36*	

No. 2784.

Marks, $\frac{8 C_n R_7 T}{M T_{12} M}$ Diameter, $\frac{1}{2}$.564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000500	.000200	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033			Elastic limit.
9,500	38,000	.001267	.000034	.....	.....	
9,750	39,000	.001400	.000133	.....	.....	
10,000	40,000	.001633	.000233	.....	.....	
10,250	41,000	.001967	.000334	.....	.....	
10,500	42,000	.002400	.000433	.....	.....	
10,750	43,000	.002700	.000300	.....	.....	
11,000	44,000	.003000	.000300	.....	.....	
11,250	45,000	.004000	.001000	.....	.....	
11,500	46,000	.006333	.002333	.....	.....	
11,750	47,000	.007667	.001334			
12,000	48,000	.008333	.000666	.....	.....	
12,250	49,000	.009167	.000834	.....	.....	
12,500	50,000	.010333	.001166	.....	.....	
13,000	52,000	.012833	.002500	.....	.....	
13,500	54,000	.015833	.003000	.....	.....	
14,000	56,000	.018000	.002167	.....	.....	
14,500	58,000	.020667	.002667	.....	.....	
15,000	60,000	.023267	.002600	.....	.....	
15,500	62,000	.026333	.003066			Tensile strength.
16,000	64,000	.029667	.003334	.....	.....	
16,500	66,000	.033000	.003333	.....	.....	
17,000	68,000	.037333	.004333	.....	.....	
17,500	70,000	.043167	.005834	.....	.....	
18,000	72,000	.048333	.005166	.....	.....	
18,500	74,000	.054667	.006334	.....	.....	
19,000	76,000	.0667	.012033	.....	.....	
19,500	78,000	.0767	.0100	.....	.....	
20,000	80,000	.1067	.0300	.....	.....	
20,060	80,240	.1300	.0233	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	80,240
Elastic limit per square inch of original section.....	do...	38,000
Elongation per inch after rupture.....	inch..	0.1900
Elongation per inch under strain at elastic limit.....	do...	.001267
Reduction in diameter at point of rupture.....	do...	.174
Reduction in area after rupture, per centum of original section.....		52.2
Position of rupture.....	" .70 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	" .37*, ".11, ".09	

NEW TUBE No. 8.

No. 2146.

Marks, $\begin{smallmatrix} 8 T_8 \\ BT_7 I \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000300	.000167	0.	-----	
3,750	15,000	.000467	.000167	0.	-----	
5,000	20,000	.000633	.000166	0.	-----	
6,250	25,000	.000800	.000167	0.	-----	
7,500	30,000	.000967	.000167	0.	-----	
8,750	35,000	.001167	.000200	.000033	.000033	Elastic limit.
9,000	36,000	.001367	.000200	-----	-----	
9,250	37,000	.008367	.007600	-----	-----	
9,500	38,000	.009500	.001133	-----	-----	
9,750	39,000	.010433	.000933	-----	-----	
10,000	40,000	.012033	.001600	-----	-----	
10,250	41,000	.012700	.000667	-----	-----	
10,500	42,000	.014000	.001300	-----	-----	
10,750	43,000	.015400	.001400	-----	-----	
11,000	44,000	.016700	.001300	-----	-----	
11,250	45,000	.017867	.001167	-----	-----	Tensile strength.
11,500	46,000	.019533	.001666	-----	-----	
11,750	47,000	.020667	.001134	-----	-----	
12,000	48,000	.022500	.001833	-----	-----	
12,250	49,000	.024000	.001500	-----	-----	
12,500	50,000	.025833	.001833	-----	-----	
13,000	52,000	.030000	.004167	-----	-----	
13,500	54,000	.034333	.004333	-----	-----	
14,000	56,000	.039167	.004834	-----	-----	
14,500	58,000	.044833	.005666	-----	-----	
15,000	60,000	.051333	.006500	-----	-----	
15,500	62,000	.058267	.006934	-----	-----	
16,000	64,000	.069000	.010733	-----	-----	
16,500	66,000	.0867	.0177	-----	-----	
17,000	68,000	.1033	.0166	-----	-----	
17,500	70,000	.1467	.0434	-----	-----	
17,550	70,200	.1900	.0433	-----	-----	

General summary.

Specific gravity	7.8591
Hardness	11.23
Tensile strength per square inch of original section	pounds.. 70,200
Elastic limit per square inch of original section	do... 35,000
Elongation per inch after rupture	inch.. 0.2600
Elongation per inch under strain at elastic limit	do... .001167
Reduction in diameter at point of rupture	do... .144
Reduction in area after rupture, per centum of original section	44.6
Position of rupture	1".20 from neck
Character of broken surface	silky; opened cracks in surface of stem
Elongation of inch sections	".33*, ".30, ".15

No. 2147.

Marks, ^{ST₈}
BT₈O

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	.000033	.000033	
2,500	10,000	.000367	.000200	.000033	0.	
3,750	15,000	.000567	.000200	.000033	0.	
5,000	20,000	.000733	.000166	.000067	.000034	
6,250	25,000	.000900	.000167	.000100	.000033	
7,500	30,000	.001033	.000133	.000100	0.	
8,750	35,000	.001233	.000200	.000100	0.	
9,000	36,000	.001333	.000100			
9,250	37,000	.001400	.000067			Elastic limit.
9,500	38,000	.005000	.003600			
9,750	39,000	.007833	.002833			
10,000	40,000	.009333	.001500			
10,250	41,000	.010400	.001067			
10,500	42,000	.011500	.001100			
10,750	43,000	.012600	.001100			
11,000	44,000	.013733	.001133			
11,250	45,000	.014900	.001167			
11,500	46,000	.016033	.001133			
11,750	47,000	.017233	.001200			
12,000	48,000	.018667	.001434			
12,250	49,000	.020000	.001333			
12,500	50,000	.021667	.001667			
13,000	52,000	.025000	.003333			
13,500	54,000	.028333	.003333			
14,000	56,000	.032167	.003834			
14,500	58,000	.036333	.004166			
15,000	60,000	.041167	.004834			
15,500	62,000	.046667	.005500			
16,000	64,000	.052833	.006166			
16,500	66,000	.061333	.008500			
17,000	68,000	.070333	.009000			
17,500	70,000	.0867	.016367			
18,000	72,000	.1067	.0200			Tensile strength.
18,380	73,520	.1733	.0666			

General summary.

Tensile strength per square inch of original section.....	pounds..	73,520
Elastic limit per square inch of original section.....	do...	37,000
Elongation per inch after rupture.....	inch..	0.2500
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.154
Reduction in area after rupture, per centum of original section.....		47.2
Position of rupture.....	1/4 inch from middle of stem	
Character of broken surface.....	silky; opened cracks in surface of stem	
Elongation of inch sections.....	".20, ".41*, ".14	

No. 2148.

Marks, $\frac{8 T_8}{B T_9 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
7,750	31,000	.001000	.000033	.....	.....	
8,000	32,000	.001000	0.	.....	.....	
8,250	33,000	.001033	.000033	.....	.....	
8,500	34,000	.001067	.000034	.....	.....	
8,750	35,000	.001100	.000033	0.	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001200	.000067	.....	.....	
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001267	.000034	.....	.....	
10,000	40,000	.001367	.000100	.000067	.000067	Elastic limit.
10,250	41,000	.001433	.000066	.....	.....	
10,500	42,000	.002033	.000600	.....	.....	
10,750	43,000	.006333	.004300	.....	.....	
11,000	44,000	.007700	.001367	.....	.....	
11,250	45,000	.008433	.000733	.....	.....	
11,500	46,000	.009767	.001334	.....	.....	
11,750	47,000	.010767	.001000	.....	.....	
12,000	48,000	.012000	.001233	.....	.....	
12,250	49,000	.013067	.000667	.....	.....	
12,500	50,000	.014467	.001400	.....	.....	
13,000	52,000	.017333	.002866	.....	.....	
13,500	54,000	.019667	.002334	.....	.....	
14,000	56,000	.022667	.003000	.....	.....	
14,500	58,000	.026333	.003666	.....	.....	
15,000	60,000	.030167	.003834	.....	.....	
15,500	62,000	.034167	.004000	.....	.....	
16,000	64,000	.038333	.004166	.....	.....	
16,500	66,000	.044333	.006000	.....	.....	
17,000	68,000	.051000	.006667	.....	.....	
17,500	70,000	.063000	.012000	.....	.....	
18,000	72,000	.0733	.0103	.....	.....	
18,500	74,000	.0933	.0200	.....	.....	
19,000	76,000	.1367	.0434	.....	.....	
19,020	76,080	.1600	.0232	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	76,080
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch..	0.2300
Elongation per inch under strain at elastic limit	do...	.001433
Reduction in diameter at point of rupture	do...	.104
Reduction in area after rupture, per centum of original section		33.5
Position of rupture	".20 from middle of stem	
Character of broken surface	silky; opened cracks in surface of stem	
Elongation of inch sections	".20, ".35*, ".1*	

No. 2149.

Marks, $\frac{8 T_8}{M T_4 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	Elastic limit.
9,000	36,000	.001267	.000134	.....	.....	
9,250	37,000	.001367	.000100	.....	.....	
9,500	38,000	.007733	.000366	.....	.....	
9,750	39,000	.008467	.000734	.....	.....	
10,000	40,000	.009333	.000866	.....	.....	
10,250	41,000	.010333	.001000	.....	.....	
10,500	42,000	.011500	.001167	.....	.....	
10,750	43,000	.012000	.000500	.....	.....	
11,000	44,000	.013733	.001733	.....	.....	
11,250	45,000	.014500	.000767	.....	.....	
11,500	46,000	.015800	.001300	.....	.....	
11,750	47,000	.016833	.001033	.....	.....	
12,000	48,000	.018067	.001234	.....	.....	
12,250	49,000	.019133	.001066	.....	.....	
12,500	50,000	.020800	.001667	.....	.....	
13,000	52,000	.023333	.002533	.....	.....	
13,500	54,000	.026667	.003334	.....	.....	
14,000	56,000	.030000	.003334	.....	.....	
14,500	58,000	.033733	.003733	.....	.....	
15,000	60,000	.038000	.004267	.....	.....	
15,500	62,000	.043333	.005333	.....	.....	
16,000	64,000	.048333	.005000	.....	.....	
16,500	66,000	.055167	.006834	.....	.....	
17,000	68,000	.064000	.008833	.....	.....	
17,500	70,000	.0733	.0093	.....	.....	
18,000	72,000	.0933	.0200	.....	.....	
18,500	74,000	.1067	.0134	.....	.....	
18,790	75,160	.1567	.0500	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	75,160
Elastic limit per square inch of original section.....	do ..	35,000
Elongation per inch after rupture.....	inch..	0.2167
Elongation per inch under strain at elastic limit.....	do...	.001133
Reduction in diameter at point of rupture.....	do...	.124
Reduction in area after rupture, per centum of original section.....		39.2
Position of rupture	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".17, ".36*, ".12	

No. 2150.

Marks, $\frac{8 T_s}{M T_s O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001133	.000133	0.	.....	
9,000	36,000	.001200	.000067	.....	.....	
9,250	37,000	.001267	.000067			Elastic limit.
9,500	38,000	.001400	.000133	.....	.....	
9,750	39,000	.006667	.005267	.....	.....	
10,000	40,000	.008733	.002066	.....	.....	
10,250	41,000	.009667	.000934	.....	.....	
10,500	42,000	.010333	.000666	.....	.....	
10,750	43,000	.011033	.000700	.....	.....	
11,000	44,000	.012000	.000967	.....	.....	
11,250	45,000	.013200	.001200	.....	.....	
11,500	46,000	.014133	.000933	.....	.....	
11,750	47,000	.015267	.001134	.....	.....	
12,000	48,000	.016500	.001233	.....	.....	
12,250	49,000	.017467	.000967	.....	.....	
12,500	50,000	.018800	.001333	.....	.....	
13,000	52,000	.021533	.002733	.....	.....	
13,500	54,000	.024333	.002800	.....	.....	
14,000	56,000	.027500	.003167	.....	.....	
14,500	58,000	.030833	.003333	.....	.....	
15,000	60,000	.034267	.003434	.....	.....	
15,500	62,000	.039167	.004900	.....	.....	
16,000	64,000	.043733	.004566	.....	.....	
16,500	66,000	.049167	.005434	.....	.....	
17,000	68,000	.055333	.006166	.....	.....	
17,500	70,000	.0633	.007967	.....	.....	
18,000	72,000	.0750	.0117	.....	.....	
18,500	74,000	.0967	.0217	.....	.....	
19,000	76,000	.1133	.0166	.....	.....	
19,410	77,640	.1800	.0667			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	77,640
Elastic limit per square inch of original section	do...	37,000
Elongation per inch after rupture	inch..	0.2333
Elongation per inch under strain at elastic limit	do...	.001267
Reduction in diameter at point of rupture	do...	.114
Reduction in area after rupture, per centum of original section		36.4
Position of rupture	"	.90 from neck
Character of broken surface, granular, 60 per centum; silky, 40 per centum; opened cracks in surface of stem.		
Elongation of inch sections	"	.31*, ".20, ".19

H. Ex. 31—40

No. 2151.

Marks, $\frac{8 T_8}{M T_6 M}$
 Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000500	.000200	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001133	.000133	0.	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001300	.000067	.....	.....	
10,000	40,000	.001367	.000067	.000033	.000033	Elastic limit.
10,250	41,000	.001400	.000033	.....	.....	
10,500	42,000	.001733	.000333	.....	.....	
10,750	43,000	.004400	.002667	.....	.....	
11,000	44,000	.006400	.002000	.....	.....	
11,250	45,000	.008000	.001600	.....	.....	
11,500	46,000	.008667	.000667	.....	.....	
11,750	47,000	.009167	.000500	.....	.....	
12,000	48,000	.010400	.001233	.....	.....	
12,250	49,000	.011000	.000600	.....	.....	
12,500	50,000	.012500	.001500	.....	.....	
13,000	52,000	.015000	.002500	.....	.....	
13,500	54,000	.017500	.002500	.....	.....	
14,000	56,000	.020000	.002500	.....	.....	
14,500	58,000	.022667	.002667	.....	.....	
15,000	60,000	.025833	.003166			Tensile strength.
15,500	62,000	.029000	.003167	.....	.....	
16,000	64,000	.032600	.003600	.....	.....	
16,500	66,000	.036667	.004067	.....	.....	
17,000	68,000	.041333	.004666	.....	.....	
17,500	70,000	.047667	.006334	.....	.....	
18,000	72,000	.054000	.006333	.....	.....	
18,500	74,000	.062333	.008333	.....	.....	
19,000	76,000	.075000	.012667	.....	.....	
19,500	78,000	.0933	.0183	.....	.....	
20,000	80,000	.1367	.0434	.....	.....	
20,015	80,060	.1600	.0233	.....	.....	

General summary.

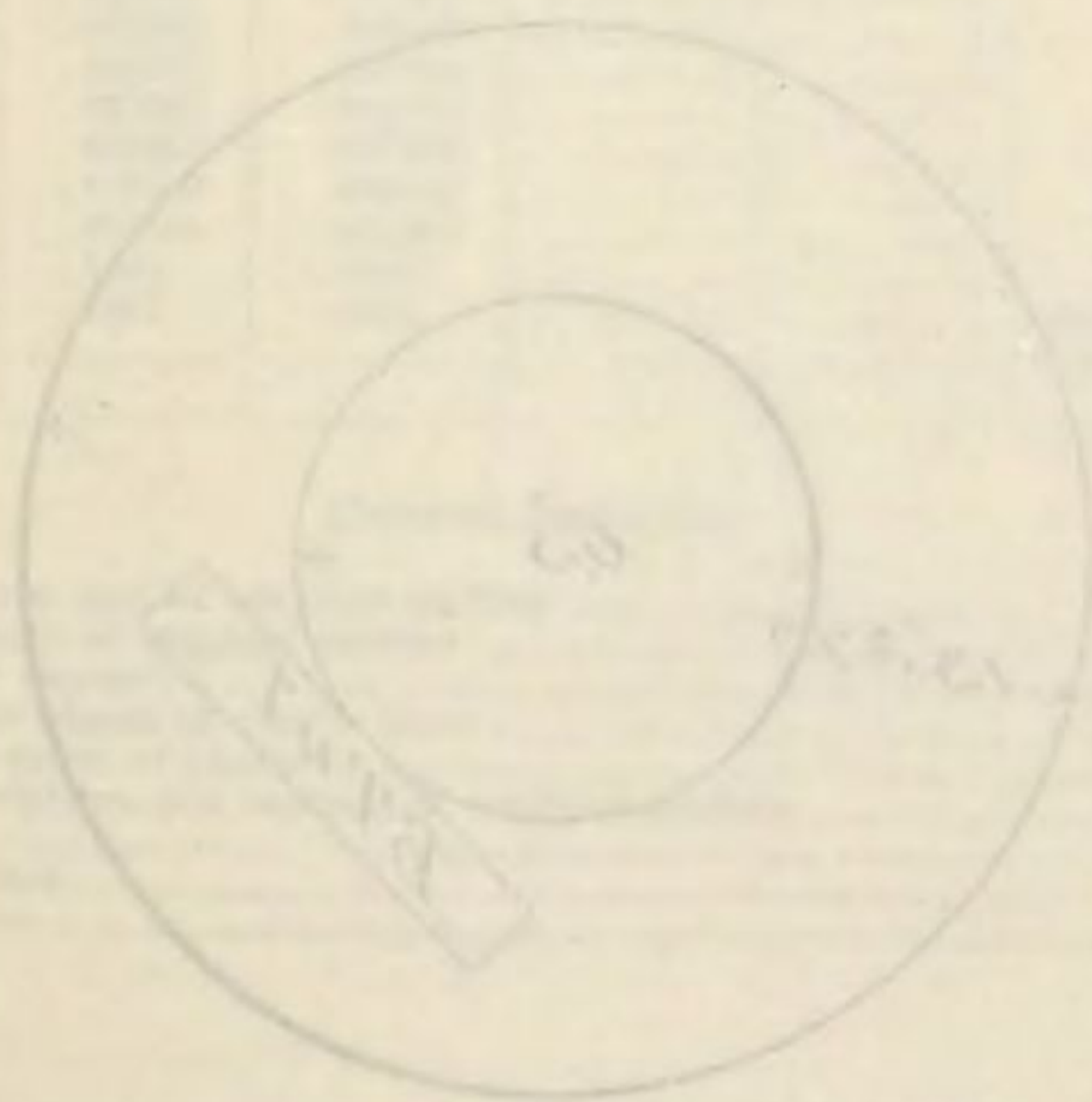
Tensile strength per square inch of original section	pounds..	80,060
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch..	0.2333
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.124
Reduction in area after rupture, per centum of original section		39.2
Position of rupture	".45 from middle of stem	
Character of broken surface	granular, 50 per centum; silky, 50 per centum	
Elongation of inch sections	".22, ".33*, ".15	

No. 1500

Scale, 1/2 inch = 1 foot
 (1/2 inch = 1 foot)
 (1/2 inch = 1 foot)
 (1/2 inch = 1 foot)

Table No. 3 - 8 Cornered Rille

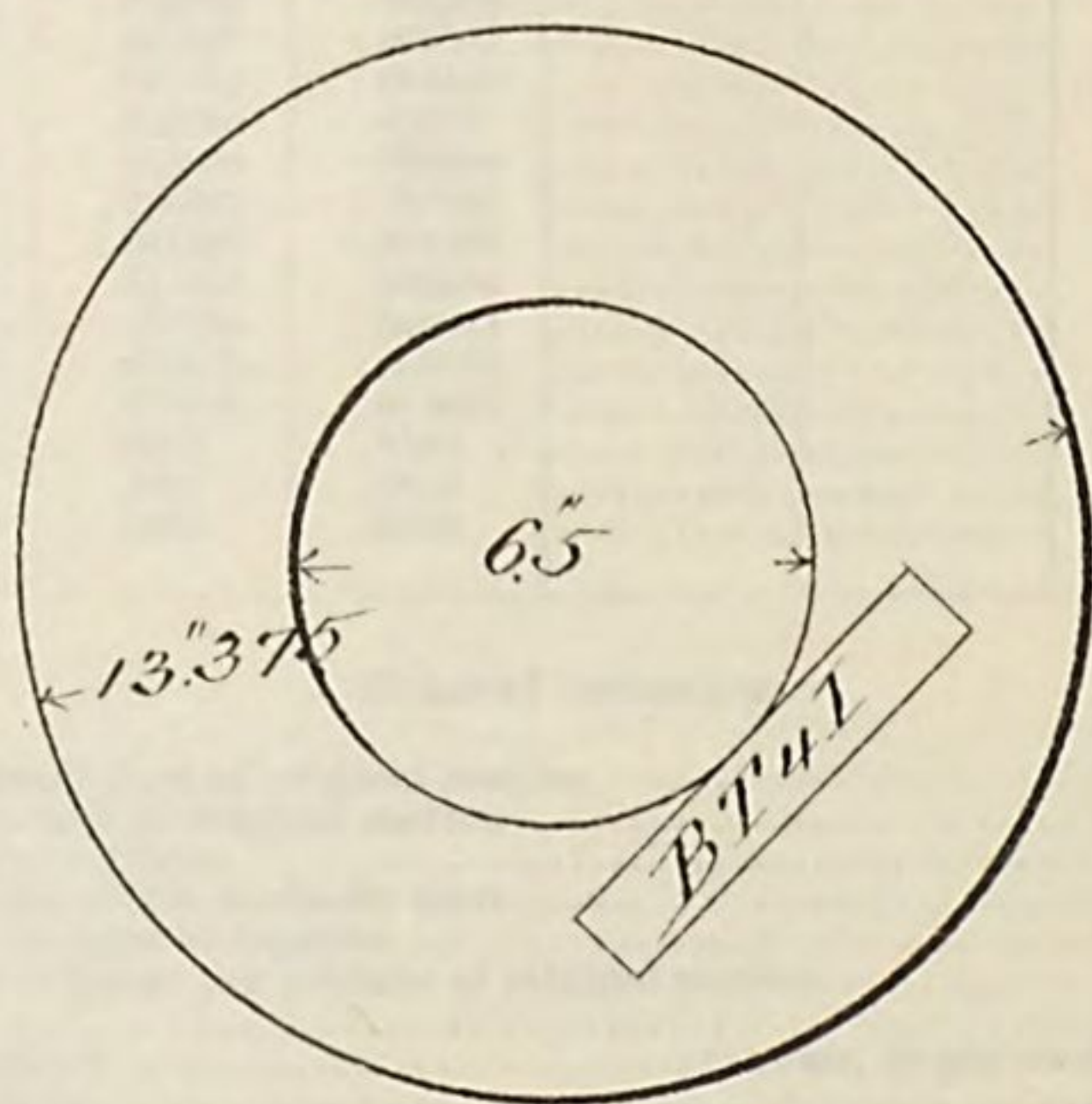
Additional specimens



H Ex 3 \ 49 5

Tube No. 9 8" converted Rifle

Additional specimen



H Ex 31 49 2

No. 1000.

Marks, $\frac{8}{B}T_9$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	-----	
2,500	10,000	.000267	.000167	0.	-----	
3,750	15,000	.000433	.000166	0.	-----	
5,000	20,000	.000600	.000167	0.	-----	
6,250	25,000	.000767	.000167	0.	-----	
7,500	30,000	.000933	.000166	0.	-----	
8,750	35,000	.001100	.000167	0.	-----	
10,000	40,000	.001233	.000133	0.	-----	
10,250	41,000	.001267	.000134	-----	-----	
10,500	42,000	.001333	.000066	-----	-----	
10,750	43,000	.001367	.000034	-----	-----	
11,000	44,000	.001433	.000066	-----	-----	Elastic limit.
11,250	45,000	.006067	.004634	.004467	.004467	
11,500	46,000	.007833	.001766	-----	-----	
11,750	47,000	.008400	.000567	-----	-----	
12,000	48,000	.009733	.001333	-----	-----	
12,250	49,000	.011000	.001267	-----	-----	
12,500	50,000	.012267	.001267	.010433	.005966	
13,000	52,000	.014500	.002233	-----	-----	
13,500	54,000	.016833	.002333	-----	-----	
14,000	56,000	.019833	.003000	-----	-----	
14,500	58,000	.023000	.003167	-----	-----	
15,000	60,000	.026000	.003000	-----	-----	
15,500	62,000	.029667	.003667	-----	-----	
16,000	64,000	.033833	.004166	-----	-----	
16,500	66,000	.039333	.005500	-----	-----	
17,000	68,000	.043667	.004334	-----	-----	Tensile strength. Load at time of rupture.
17,500	70,000	.050667	.007000	-----	-----	
18,000	72,000	.059500	.008833	-----	-----	
18,500	74,000	.072000	.012500	-----	-----	
19,000	76,000	.1033	.0313	-----	-----	
19,280	77,120	.1667	.0634	-----	-----	
16,300	-----	-----	-----	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	77,120
Elastic limit per square inch of original section	do..	44,000
Elongation per inch after rupture	inch..	0.2533
Elongation per inch under strain at elastic limit	do..	.001433
Reduction in diameter at point of rupture	do..	.154
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	$\frac{7}{8}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections	".44", ".21", ".11	

NEW TUBE NO. 12.

No. 2164.

Marks, $\frac{8}{B} \frac{T_{12}}{T_4 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set,	Successive permanent set.	Remarks.
Total.	Persquare inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033	.....	.....	
9,500	38,000	.001267	.000034	.....	.....	
9,750	39,000	.001300	.000033	.....	.....	Elastic limit.
10,000	40,000	.001500	.000200	.....	.....	
10,250	41,000	.002500	.001000	.....	.....	
10,500	42,000	.004067	.001567	.....	.....	
10,750	43,000	.005400	.001333	.....	.....	
11,000	44,000	.006600	.001200	.....	.....	
11,250	45,000	.007667	.001037	.....	.....	
11,500	46,000	.008667	.001000	.....	.....	
11,750	47,000	.009667	.001000	.....	.....	
12,000	48,000	.010667	.001000	.....	.....	
12,250	49,000	.012000	.001333	.....	.....	
12,500	50,000	.013200	.001200	.....	.....	
12,750	51,000	.014333	.001133	.....	.....	
13,000	52,000	.015667	.001334	.....	.....	
13,250	53,000	.017333	.001666	.....	.....	
13,500	54,000	.018333	.001000	.....	.....	
13,750	55,000	.019700	.001367	.....	.....	
14,000	56,000	.021400	.001700	.....	.....	
14,250	57,000	.023033	.001633	.....	.....	
14,500	58,000	.024667	.001634	.....	.....	
14,750	59,000	.026167	.001500	.....	.....	
15,000	60,000	.028333	.002166	.....	.....	
15,500	62,000	.032333	.004000	.....	.....	
16,000	64,000	.036667	.004334	.....	.....	
16,500	66,000	.042000	.005333	.....	.....	
17,000	68,000	.048667	.006667	.....	.....	
17,500	70,000	.056667	.008000	.....	.....	
18,000	72,000	.070000	.013333	.....	.....	
18,500	74,000	.0900	.0200	.....	.....	
19,000	76,000	.1100	.0200	.....	.....	
19,170	76,680	.1667	.0567	.....	.....	Tensile strength.

General summary.

Specific gravity.....	7.8588
Hardness.....	13.14
Tensile strength per square inch of original section..... pounds..	76,680
Elastic limit per square inch of original section..... do.....	39,000
Elongation per inch after rupture..... inch.....	0.2633
Elongation per inch under strain at elastic limit..... do.....	.001300
Reduction in diameter at point of rupture..... do.....	.174
Reduction in area after rupture, per centum of original section.....	52.2
Position of rupture.....	1 inch from neck
Character of broken surface.....	silky
Elongation of inch sections.....	".40*, ".24, ".15

No. 2165.

Marks, $\frac{8}{B} T_{12} O$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000533	.000133	0.	.....	
6,250	25,000	.000667	.000134	0.	.....	
7,500	30,000	.000833	.000166	0.	.....	
8,750	35,000	.001000	.000167	0.	.....	
9,000	36,000	.001033	.000033	.....	.....	
9,250	37,000	.001067	.000034	.....	.....	
9,500	38,000	.001100	.000033	.....	.....	
9,750	39,000	.001133	.000033	.....	.....	
10,000	40,000	.001200	.000067	0.	.....	
10,250	41,000	.001233	.000033	.....	.....	Elastic limit.
10,500	42,000	.002167	.000934	.....	.....	
10,750	43,000	.003000	.000833	.....	.....	
11,000	44,000	.004100	.001100	.....	.....	
11,250	45,000	.005500	.001400	.....	.....	
11,500	46,000	.006733	.001233	.....	.....	
11,750	47,000	.007933	.001200	.....	.....	
12,000	48,000	.009000	.001067	.....	.....	
12,250	49,000	.010000	.001000	.....	.....	
12,500	50,000	.011033	.001033	.....	.....	
12,750	51,000	.012167	.001134	.....	.....	
13,000	52,000	.013333	.001166	.....	.....	
13,250	53,000	.014333	.001000	.....	.....	
13,500	54,000	.015800	.001467	.....	.....	
13,750	55,000	.017167	.001367	.....	.....	
14,000	56,000	.018600	.001433	.....	.....	
14,250	57,000	.019667	.001067	.....	.....	
14,500	58,000	.021233	.001566	.....	.....	
14,750	59,000	.022767	.001534	.....	.....	
15,000	60,000	.024567	.001800	.....	.....	
15,500	62,000	.027667	.003100	.....	.....	
16,000	64,000	.031533	.003866	.....	.....	
16,500	66,000	.036000	.004467	.....	.....	
17,000	68,000	.042667	.006667	.....	.....	
17,500	70,000	.047500	.004833	.....	.....	
18,000	72,000	.054167	.006667	.....	.....	
18,500	74,000	.063667	.009500	.....	.....	
19,000	76,000	.078333	.014666	.....	.....	
19,500	78,000	.1100	.031667	.....	.....	
19,580	78,320	.1400	.0300	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	78,320
Elastic limit per square inch of original section.....	do....	41,000
Elongation per inch after rupture.....	inch..	0.2100
Elongation per inch under strain at elastic limit.....	do....	.001233
Reduction in diameter at point of rupture	do....	.154
Reduction in area after rupture, per centum of original section.....		47.2
Position of rupture	1 inch from neck	
Character of broken surface	silky	
Elongation of inch sections.....	".36*, ".18, ".09	

No. 2166.

Marks, $\frac{8}{B} \frac{T_{12}}{T_6} M$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000467	.000134	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.001000	.000200	.000033	.000033	
8,750	35,000	.001167	.000167	.000033	0.	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033	.....	.....	
9,500	38,000	.001300	.000067			Elastic limit.
9,750	39,000	.001367	.000067	.....	.....	
10,000	40,000	.001400	.000033	.000067	.000034	
10,250	41,000	.003833	.002433	.....	.....	
10,500	42,000	.006000	.002167	.....	.....	
10,750	43,000	.006900	.000900	.....	.....	
11,000	44,000	.008200	.001300	.....	.....	
11,250	45,000	.009333	.001133	.....	.....	
11,500	46,000	.010033	.000700	.....	.....	
11,750	47,000	.011000	.000967	.....	.....	
12,000	48,000	.012333	.001333	.....	.....	
12,250	49,000	.013500	.001167	.....	.....	
12,500	50,000	.014733	.001233	.....	.....	
12,750	51,000	.015933	.001200	.....	.....	
13,000	52,000	.017700	.001767	.....	.....	
13,250	53,000	.019000	.001300	.....	.....	
13,500	54,000	.020677	.001667	.....	.....	
13,750	55,000	.022000	.001333	.....	.....	
14,000	56,000	.023677	.001667	.....	.....	
14,250	57,000	.025333	.001666	.....	.....	
14,500	58,000	.027067	.001734	.....	.....	
14,750	59,000	.029000	.001933	.....	.....	
15,000	60,000	.031000	.002000			Tensile strength.
15,500	62,000	.035500	.004500	.....	.....	
16,000	64,000	.040400	.004900	.....	.....	
16,500	66,000	.046667	.006267	.....	.....	
17,000	68,000	.054333	.007666	.....	.....	
17,500	70,000	.063333	.009000	.....	.....	
18,000	72,000	.077333	.014000	.....	.....	
18,500	74,000	.1000	.022667	.....	.....	
18,750	75,000	.1667	.0667	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	75,000
Elastic limit per square inch of original section	do...	40,000
Elongation per inch after rupture	inch..	0.2933
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.154
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	$\frac{1}{2}$ inch from middle of stem	
Character of broken surface	silky	
Elongations of inch sections	".26, ".37*, ".15	

No. 2167.

Marks, $\frac{8 T_{12}}{M T_8 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
10,000	40,000	.001300	.000167	0.	.....	
10,250	41,000	.001333	.000033			Elastic limit.
10,500	42,000	.001367	.000034	.....	.....	
10,750	43,000	.001400	.000033	.....	.....	
11,000	44,000	.001567	.000167	.....	.....	
11,250	45,000	.003167	.001600	.....	.....	
11,500	46,000	.006467	.003300	.....	.....	
11,750	47,000	.007600	.001133	.....	.....	
12,000	48,000	.008833	.001233	.....	.....	
12,250	49,000	.010133	.001300	.....	.....	
12,500	50,000	.011300	.001167	.....	.....	
12,750	51,000	.012233	.000933	.....	.....	
13,000	52,000	.013400	.001167	.....	.....	
13,250	53,000	.014367	.000967	.....	.....	
13,500	54,000	.015800	.001433	.....	.....	
13,750	55,000	.016933	.001133	.....	.....	
14,000	56,000	.018333	.001400	.....	.....	
14,250	57,000	.019633	.001300	.....	.....	
14,500	58,000	.020967	.001334	.....	.....	
14,750	59,000	.022300	.001333	.....	.....	
15,000	60,000	.024033	.001733	.....	.....	
15,500	62,000	.027500	.003467	.....	.....	
16,000	64,000	.031333	.003833	.....	.....	
16,500	66,000	.035333	.004000	.....	.....	
17,000	68,000	.040667	.005334	.....	.....	
17,500	70,000	.048000	.007333	.....	.....	
18,000	72,000	.054500	.006500	.....	.....	
18,500	74,000	.065000	.010500	.....	.....	
19,000	76,000	.0767	.0117	.....	.....	
19,500	78,000	.1067	.0300	.....	.....	
19,760	79,040	.1700	.0633			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	79,040
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	0.2400
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....	".05 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".20, ".39*, ".13	

No. 1268.

Marks, $\frac{8}{M} T_{12}^2$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000867	.000200	.000067	.000067	
7,500	30,000	.001067	.000200	.000100	.000033	
8,750	35,000	.001200	.000133	.000100	0.	
9,000	36,000	.001267	.000067	.....	.....	
9,250	37,000	.001300	.000033	.....	.....	
9,500	38,000	.001367	.000067			Elastic limit.
9,750	39,000	.001400	.000033	.....	.....	
10,000	40,000	.001433	.000033	.000100	0.	
10,250	41,000	.001467	.000034	.....	.....	
10,500	42,000	.005667	.004200	.....	.....	
10,750	43,000	.008333	.002666	.....	.....	
11,000	44,000	.009667	.001334	.....	.....	
11,250	45,000	.010400	.000733	.....	.....	
11,500	46,000	.012000	.001600	.....	.....	
11,750	47,000	.013000	.001000	.....	.....	
12,000	48,000	.013933	.000933	.....	.....	
12,250	49,000	.014667	.000734	.....	.....	
12,500	50,000	.016000	.001333	.....	.....	
12,750	51,000	.017067	.001067	.....	.....	
13,000	52,000	.018967	.001900	.....	.....	
13,250	53,000	.020667	.001700	.....	.....	
13,500	54,000	.022333	.001666	.....	.....	
13,750	55,000	.023333	.001000	.....	.....	
14,000	56,000	.024333	.001000	.....	.....	
14,250	57,000	.025700	.001367	.....	.....	
14,500	58,000	.027400	.001700	.....	.....	
14,750	59,000	.029200	.001800	.....	.....	
15,000	60,000	.031333	.002133	.....	.....	
15,500	62,000	.035000	.003667	.....	.....	
16,000	64,000	.040000	.005000	.....	.....	
16,500	66,000	.045500	.005500	.....	.....	
17,000	68,000	.051667	.006167	.....	.....	
17,500	70,000	.059333	.007666	.....	.....	
18,000	72,000	.069000	.009667	.....	.....	
18,500	74,000	.0867	.0177	.....	.....	
19,000	76,000	.1067	.0200	.....	.....	
19,210	76,840	.1433	.0366			Tensile strength.

General summary.

Tensile strength, per square inch of original section	pounds..	76,840
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch...	0.2300
Elongation per inch under strain at elastic limit	do...	.001467
Reduction in diameter at point of rupture	do...	.174
Reduction in area after rupture, per centum of original section		52.2
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections	".44", ".16", ".09	

No. 2169.

Marks, $M T_{10}^{8 T_{12} M}$
Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000233	.000100	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
9,000	36,000	.001133	.000066	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001200	.000033			Elastic limit.
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001267	.000034	.000033	.000033	
10,250	41,000	.001400	.000133	.....	.....	
10,500	42,000	.010733	.009333	.....	.....	
10,750	43,000	.011667	.000934	.....	.....	
11,000	44,000	.012700	.001033	.....	.....	
11,250	45,000	.013833	.001133	.....	.....	
11,500	46,000	.015333	.001500	.....	.....	
11,750	47,000	.016167	.000834	.....	.....	
12,000	48,000	.017467	.001300			Tensile strength.
12,250	49,000	.018733	.001266	.....	.....	
12,500	50,000	.020067	.001334	.....	.....	
12,750	51,000	.021333	.001266	.....	.....	
13,000	52,000	.023333	.002000	.....	.....	
13,250	53,000	.024533	.001200	.....	.....	
13,500	54,000	.026367	.001834	.....	.....	
13,750	55,000	.027867	.001500	.....	.....	
14,000	56,000	.029833	.001966	.....	.....	
14,250	57,000	.031433	.001600	.....	.....	
14,500	58,000	.033333	.001900			Tensile strength.
14,750	59,000	.035067	.001734	.....	.....	
15,000	60,000	.038000	.002933	.....	.....	
15,500	62,000	.042500	.004500	.....	.....	
16,000	64,000	.048833	.006333	.....	.....	
16,500	66,000	.055000	.006167	.....	.....	
17,000	68,000	.063333	.008333	.....	.....	
17,500	70,000	.073333	.010000	.....	.....	
18,000	72,000	.0933	.019967	.....	.....	
18,500	74,000	.1233	.0300	.....	.....	
18,820	75,280	.1800	.0567	.....	.....	

General summary.

Tensile strength per square inch of original section.....pounds.. 75,280
 Elastic limit per square inch of original section.....do... 40,000
 Elongation per inch after rupture.....inch.. 0.2567
 Elongation per inch under strain at elastic limit.....do... .001267
 Reduction in diameter at point of rupture.....do... .144
 Reduction in area after rupture, per centum of original section..... 44.6
 Position of rupture.....".90 from neck
 Character of broken surface.....silky; slight granulation
 Elongation of inch sections.....".37", ".22", ".18

NEW TUBE No. 13.

No. 2181.

Marks, $\frac{8T_{13}}{BT_{8I}}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000600	.000200	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000900	.000133	0.	.....	
8,750	35,000	.001033	.000133	0.	.....	
9,000	36,000	.001067	.000034	.....	.....	
9,250	37,000	.001133	.000066	.....	.....	
9,500	38,000	.001167	.000034			Elastic limit.
9,750	39,000	.001200	.000033	.....	.....	
10,000	40,000	.001233	.000033	0.	.....	
10,250	41,000	.001300	.000067	.....	.....	
10,500	42,000	.002133	.000833	.....	.....	
10,750	43,000	.003333	.001200	.....	.....	
11,000	44,000	.005500	.002167	.....	.....	
11,250	45,000	.007400	.001900	.....	.....	
11,500	46,000	.008667	.001267	.....	.....	
11,750	47,000	.009733	.001066	.....	.....	
12,000	48,000	.011200	.001467			Tensile strength.
12,250	49,000	.012167	.000967	.....	.....	
12,500	50,000	.013567	.001400	.....	.....	
12,750	51,000	.014667	.001100	.....	.....	
13,000	52,000	.016000	.001333	.....	.....	
13,250	53,000	.017333	.001333	.....	.....	
13,500	54,000	.019000	.001667	.....	.....	
13,750	55,000	.020233	.001233	.....	.....	
14,000	56,000	.021800	.001567	.....	.....	
14,250	57,000	.023333	.001533	.....	.....	
14,500	58,000	.025133	.001800	.....	.....	
14,750	59,000	.027333	.002200	.....	.....	
15,000	60,000	.029667	.002334	.....	.....	
15,500	62,000	.033833	.004166	.....	.....	
16,000	64,000	.038500	.004667	.....	.....	
16,500	66,000	.044500	.006000	.....	.....	
17,000	68,000	.052333	.007833	.....	.....	
17,500	70,000	.061667	.009334	.....	.....	
18,000	72,000	.075000	.013333	.....	.....	
18,500	74,000	.0967	.0217	.....	.....	
18,880	75,520	.1667	.0700	.....	.....	

General summary.

Specific gravity	7.8573
Hardness	12.84
Tensile strength per square inch of original section	pounds.. 75,520
Elastic limit per square inch of original section	do... 41,000
Elongation per inch after rupture	inch.. 0.2667
Elongation per inch under strain at elastic limit	do... .001300
Reduction in diameter at point of rupture	do... .184
Reduction in area after rupture, per centum of original section	54.6
Position of rupture	1½" from neck
Character of broken surface	silky
Elongation of inch sections	".35*, ".30, ".15

No. 2182.

Marks, $\frac{8}{B} \frac{T_{13}}{T_9} O$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000300	.000167	0.	-----	
3,750	15,000	.000467	.000167	0.	-----	
5,000	20,000	.000667	.000200	0.	-----	
6,250	25,000	.000800	.000133	0.	-----	
7,500	30,000	.000967	.000167	0.	-----	
8,750	35,000	.001133	.000166	0.	-----	
9,000	36,000	.001133	0.	-----	-----	
9,250	37,000	.001167	.000034	-----	-----	
9,500	38,000	.001200	.000033	-----	-----	Elastic limit.
9,750	39,000	.001233	.000033	-----	-----	
10,000	40,000	.001267	.000034	0.	-----	
10,250	41,000	.001300	.000033	-----	-----	
10,500	42,000	.001367	.000067	-----	-----	
10,750	43,000	.001400	.000033	-----	-----	
11,000	44,000	.001467	.000067	-----	-----	
11,250	45,000	.007167	.005700	-----	-----	
11,500	46,000	.008100	.000933	-----	-----	
11,750	47,000	.009000	.000900	-----	-----	
12,000	48,000	.010067	.001067	-----	-----	
12,250	49,000	.011133	.001066	-----	-----	
12,500	50,000	.012333	.001200	-----	-----	
12,750	51,000	.013333	.001000	-----	-----	
13,000	52,000	.014400	.001067	-----	-----	
13,250	53,000	.015667	.001267	-----	-----	
13,500	54,000	.016667	.001000	-----	-----	
13,750	55,000	.017967	.001300	-----	-----	
14,000	56,000	.019633	.001666	-----	-----	
14,250	57,000	.021067	.001434	-----	-----	
14,500	58,000	.022500	.001433	-----	-----	
14,750	59,000	.024000	.001500	-----	-----	
15,000	60,000	.025933	.001933	-----	-----	
15,500	62,000	.029333	.003400	-----	-----	
16,000	64,000	.033333	.004000	-----	-----	
16,500	66,000	.038000	.004667	-----	-----	
17,000	68,000	.042667	.004667	-----	-----	
17,500	70,000	.049000	.006333	-----	-----	
18,000	72,000	.057500	.008500	-----	-----	
18,500	74,000	.067667	.010167	-----	-----	
19,000	76,000	.0900	.022333	-----	-----	
19,500	78,000	.1100	.0200	-----	-----	
19,700	78,800	.1667	.0567	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	78,800
Elastic limit per square inch of original section	do...	44,000
Elongation per inch after rupture	inch..	0.2600
Elongation per inch under strain at elastic limit	do...	.001467
Reduction in diameter at point of rupture	do...	.175
Reduction in area after rupture, per centum of original section		52.2
Position of rupture	$\frac{1}{2}$ inch from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".25, ".40*, ".13	

No. 2183.

Marks, $\frac{8}{B} \frac{T_{13}}{T_{10}} M$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001100	.000133	0.	.....	
9,000	36,000	.001167	.000067	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001267	.000067	.....	.....	
9,750	39,000	.001333	.000066	.....	.....	
10,000	40,000	.001400	.000067	.000133	.000133	Elastic limit.
10,520	41,000	.002300	.000900	.....	.....	
10,500	42,000	.004000	.001700	.....	.....	
10,750	43,000	.005033	.001033	.....	.....	
11,000	44,000	.006200	.001167	.....	.....	
11,250	45,000	.007200	.001000	.....	.....	
11,500	46,000	.008333	.001133	.....	.....	
11,750	47,000	.009500	.001167	.....	.....	
12,000	48,000	.010667	.001167	.....	.....	
12,250	49,000	.011400	.000733	.....	.....	
12,500	50,000	.012667	.001267	.....	.....	
12,750	51,000	.013767	.001100	.....	.....	
13,000	52,000	.015333	.001566	.....	.....	
13,250	53,000	.016667	.001334	.....	.....	
13,500	54,000	.018000	.001333	.....	.....	
13,750	55,000	.019167	.001167	.....	.....	
14,000	56,000	.020400	.001233	.....	.....	
14,250	57,000	.021733	.001333	.....	.....	
14,500	58,000	.023733	.002000	.....	.....	
14,750	59,000	.025167	.001434	.....	.....	
15,000	60,000	.027667	.002500	.....	.....	
15,500	62,000	.030833	.003166	.....	.....	
16,000	64,000	.034733	.003900	.....	.....	
16,500	66,000	.040000	.005267	.....	.....	
17,000	68,000	.045667	.005667	.....	.....	
17,500	70,000	.052000	.006333	.....	.....	
18,000	72,000	.061667	.009667	.....	.....	
18,500	74,000	.0733	.011633	.....	.....	
19,000	76,000	.1000	.0267	.....	.....	
19,250	77,000	.1467	.0467			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	77,000
Elastic limit per square inch of original section.....	do....	40,000
Elongation per inch after rupture.....	inch..	0.2433
Elongation per inch under strain at elastic limit.....	do....	.001400
Reduction in diameter at point of rupture.....	do....	.174
Reduction in area after rupture, per centum of original section.....	.....	52.2
Position of rupture.....	".95 from neck	
Character of broken surface.....	.....	silky
Elongation of inch sections.....	.....	".40*, ".19, ".14

No. 2184.

Marks, $\frac{8 T_{13}}{M T_4 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001133	0.	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001200	.000033	.....	.....	
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001267	.000034	0.	.....	
10,250	41,000	.001333	.000066	.....	.....	
10,500	42,000	.001367	.000034	.....	.....	
10,750	43,000	.001400	.000033	.....	.....	Elastic limit.
11,000	44,000	.012133	.010733	.....	.....	
11,250	45,000	.012633	.000500	.....	.....	
11,500	46,000	.013233	.000600	.....	.....	
11,750	47,000	.014000	.000767	.....	.....	
12,000	48,000	.015100	.001100	.....	.....	
12,250	49,000	.016667	.001567	.....	.....	
12,500	50,000	.018067	.001400	.....	.....	
12,750	51,000	.019667	.001600	.....	.....	
13,000	52,000	.020867	.001200	.....	.....	
13,250	53,000	.022000	.001133	.....	.....	
13,500	54,000	.023867	.001867	.....	.....	
13,750	55,000	.025500	.001633	.....	.....	
14,000	56,000	.027333	.001833	.....	.....	
14,250	57,000	.029000	.001667	.....	.....	
14,500	58,000	.030833	.001833	.....	.....	
14,750	59,000	.032667	.001834	.....	.....	
15,000	60,000	.034667	.002000	.....	.....	
15,500	62,000	.039167	.004500	.....	.....	
16,000	64,000	.043733	.004566	.....	.....	
16,500	66,000	.050000	.006267	.....	.....	
17,000	68,000	.056667	.006667	.....	.....	
17,500	70,000	.0667	.010033	.....	.....	
18,000	72,000	.0800	.0133	.....	.....	
18,500	74,000	.1000	.0200	.....	.....	
19,000	76,000	.1300	.0300	.....	.....	
19,200	76,800	.1733	.0433	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	76,800
Elastic limit per square inch of original section	do...	43,000
Elongation per inch after rupture	inch..	0.2567
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.154
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	1 inch from neck	
Character of broken surface	silky	
Elongation of inch sections	".40*, ".21, ".16	

No. 2185.

Marks, $\frac{8}{M} T_{13}$ Diameter, $\frac{11}{16}$.565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	— .000033	— .000033	
2,500	10,000	.000233	.000133	— .000033	0.	
3,750	15,000	.000400	.000167	— .000033	0.	
5,000	20,000	.000567	.000167	— .000033	0.	
6,250	25,000	.000733	.000166	— .000033	0.	
7,500	30,000	.000900	.000167	— .000033	0.	
8,750	35,000	.001033	.000133	— .000033	0.	
9,000	36,000	.001100	.000067	.....	.....	
9,250	37,000	.001133	.000033	.....	.....	
9,500	38,000	.001167	.000034	.....	.....	
9,750	39,000	.001200	.000033	.....	.....	
10,000	40,000	.001233	.000033	.....	.....	
10,250	41,000	.001267	.000034			Elastic limit.
10,500	42,000	.005267	.004000	.....	.....	
10,750	43,000	.006500	.001233	.....	.....	
11,000	44,000	.008367	.001867	.....	.....	
11,250	45,000	.009433	.001066	.....	.....	
11,500	46,000	.010533	.001100	.....	.....	
11,750	47,000	.011400	.000867	.....	.....	
12,000	48,000	.012800	.001400	.....	.....	
12,250	49,000	.013733	.000933	.....	.....	
12,500	50,000	.014967	.001234	.....	.....	
12,750	51,000	.016200	.001233	.....	.....	
13,000	52,000	.017400	.001200	.....	.....	
13,250	53,000	.018633	.001233	.....	.....	
13,500	54,000	.020000	.001367	.....	.....	
13,750	55,000	.021167	.001167	.....	.....	
14,000	56,000	.022533	.001366			Tensile strength.
14,250	57,000	.024067	.001534	.....	.....	
14,500	58,000	.026000	.001933	.....	.....	
14,750	59,000	.027400	.001400	.....	.....	
15,000	60,000	.029333	.001933	.....	.....	
15,500	62,000	.033000	.003667	.....	.....	
16,000	64,000	.037067	.004067	.....	.....	
16,500	66,000	.042667	.005600	.....	.....	
17,000	68,000	.048333	.005666	.....	.....	
17,500	70,000	.055500	.007167	.....	.....	
18,000	72,000	.064000	.008500	.....	.....	
18,500	74,000	.0767	.0127	.....	.....	
19,000	76,000	.1000	.0233	.....	.....	
19,460	77,840	.1467	.0467	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds...	77,840
Elastic limit per square inch of original section	do	41,000
Elongation per inch after rupture	inch	0.2333
Elongation per inch under strain at elastic limit	do	.001267
Reduction in diameter at point of rupture	do	.185
Reduction in area after rupture, per centum of original section		54.6
Position of rupture	" .70 from neck	
Character of broken surface	silky	
Elongation of inch sections	" .43, ".15, ".12	

No. 2186.

Marks, $\frac{8 T_{13}}{M T_6 M}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,300	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033	.....	.....	
9,500	38,000	.001267	.000034	.....	.....	
9,750	39,000	.001300	.000033	.....	.....	
10,000	40,000	.001333	.000033	0.	.....	
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.001400	.000033	.....	.....	
10,750	43,000	.001467	.000067	.....	.....	
11,000	44,000	.001500	.000033	.....	.....	
11,250	45,000	.001533	.000033	.....	.....	
11,500	46,000	.001633	.000100			Elastic limit.
11,700	47,000	.003167	.001534	.....	.....	
12,000	48,000	.007067	.003900	.....	.....	
12,250	49,000	.008167	.001100	.....	.....	
12,500	50,000	.009667	.001500	.....	.....	
12,750	51,000	.010267	.000600	.....	.....	
13,000	52,000	.011333	.001066	.....	.....	
13,250	53,000	.012333	.001000	.....	.....	
13,500	54,000	.013533	.001200	.....	.....	
13,750	55,000	.014667	.001134	.....	.....	
14,000	56,000	.016000	.001333	.....	.....	
14,250	57,000	.017100	.001100	.....	.....	
14,500	58,000	.018667	.001567	.....	.....	
14,750	59,000	.019833	.001166	.....	.....	
15,000	60,000	.021500	.001667	.....	.....	
15,500	62,000	.025333	.003833	.....	.....	
16,000	64,000	.028167	.002834	.....	.....	
16,500	66,000	.032167	.004000	.....	.....	
17,000	68,000	.036333	.004166	.....	.....	
17,500	70,000	.041333	.005000	.....	.....	
18,000	72,000	.047667	.006334	.....	.....	
18,500	74,000	.055500	.007833	.....	.....	
19,000	76,000	.064667	.009167	.....	.....	
19,500	78,000	.0833	.018633	.....	.....	
20,000	80,000	.1167	.0334			Tensile strength.
20,100	80,400	.1533	.0366	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	80,400
Elastic limit per square inch of original section.....	do...	46,000
Elongation per inch after rupture.....	inch..	0.2467
Elongation per inch under strain at elastic limit.....	do...	.001633
Reduction in diameter at point of rupture.....	do...	.165
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	".05 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".17, ".41*, ".16	

NEW TUBE No. 15.

No. 2350.

Marks, $\frac{8}{B} \frac{T_{15}}{T_8} I$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,200	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000533	.000133	0.	.....	
6,250	25,000	.000700	.000167	0.	.....	
7,500	30,000	.000900	.000200	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
10,000	40,000	.001233	.000160	0.	.....	
10,250	41,000	.001267	.000034			Elastic limit.
10,500	42,000	.001300	.000033	.....	.....	
10,750	43,000	.001300	0.	.....	.....	
11,000	44,000	.013433	.012133	.....	.....	
11,250	45,000	.014167	.000734	.....	.....	
11,500	46,000	.015500	.001333	.....	.....	
11,750	47,000	.016833	.001333	.....	.....	
12,000	48,000	.018600	.001767	.....	.....	
12,250	49,000	.019767	.001167	.....	.....	
12,500	50,000	.021800	.002033	.....	.....	
13,000	52,000	.025767	.003967	.....	.....	
13,500	54,000	.030000	.004233	.....	.....	
14,000	56,000	.034667	.004667	.....	.....	
14,500	58,000	.040000	.005333	.....	.....	
15,000	60,000	.046333	.006333	.....	.....	
15,500	62,000	.054500	.008167			Tensile strength.
16,000	64,000	.063000	.008500	.....	.....	
16,500	66,000	.0767	.0137	.....	.....	
17,000	68,000	.0967	.0200	.....	.....	
17,500	70,000	.1500	.0533	.....	.....	
17,580	70,320	.1800	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	70,320
Elastic limit per square inch of original section	do...	43,000
Elongation per inch after rupture.....	inch..	0.3000
Elongation per inch under strain at elastic limit	do...	.001300
Reduction in diameter at point of rupture.....	do...	.204
Reduction in area after rupture, per centum of original section.....		59.3
Position of rupture.....	1".25 from neck	
Character of broken surface.....	silky	
Elongation of inch section.....	".17, ".48*, ".25	

No. 2351.

Marks, $\frac{8}{B} \frac{T_{15}}{T_{10} O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
10,000	40,000	.001267	.000167	0.	.....	
11,250	45,000	.001467	.000200	.000033	.000033	
11,500	46,000	{ .001500	.000033 }			Elastic limit.
		{ .016867	.015367 }	.....	.....	
11,750	47,000	.017467	.000600	.....	.....	
12,000	48,000	.018733	.001266	.....	.....	
12,250	49,000	.020000	.001267	.....	.....	
12,500	50,000	.022333	.002333	.....	.....	
13,000	52,000	.025833	.003500	.....	.....	
13,500	54,000	.029833	.004000	.....	.....	
14,000	56,000	.034500	.004667	.....	.....	
14,500	58,000	.039333	.004833	.....	.....	
15,000	60,000	.045333	.006000			Tensile strength.
15,500	62,000	.053333	.008000	.....	.....	
16,000	64,000	.060667	.007334	.....	.....	
16,500	66,000	.0733	.012633	.....	.....	
17,000	68,000	.0933	.0200	.....	.....	
17,500	70,000	.1200	.0267	.....	.....	
17,800	71,200	.1867	.0667	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	71,200
Elastic limit per square inch of original section	do ..	46,000
Elongation per inch after rupture	inch..	0.2867
Elongation per inch under strain at elastic limit	do...	.001500
Reduction in diameter at point of rupture	do...	.204
Reduction in area after rupture, per centum of original section		59.3
Position of rupture	at middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".18, ".50*, ".18	

H. Ex. 31—41

No. 2352.

Marks, $\frac{8}{B} \frac{T_{15}}{T_{10}} M$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000467	.000134	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
10,000	40,000	{ .001333	.000200 }	.000067	.000067	Elastic limit.
		{ .006167	.004834 }			
10,250	41,000	.011333	.005166	.....	.....	
10,500	42,000	.012333	.001000	.....	.....	
10,750	43,000	.013167	.000834	.....	.....	
11,000	44,000	.014667	.001500	.....	.....	
11,250	45,000	.015833	.001166	.....	.....	
11,500	46,000	.017533	.001700	.....	.....	
11,750	47,000	.019333	.001800	.....	.....	
12,000	48,000	.020667	.001334	.....	.....	
12,250	49,000	.022333	.001666	.....	.....	
12,500	50,000	.024367	.002034	.....	.....	
13,000	52,000	.028167	.003800	.....	.....	
13,500	54,000	.032167	.004000	.....	.....	
14,000	56,000	.038167	.006000	.....	.....	
14,500	58,000	.043333	.005166	.....	.....	
15,000	60,000	.050000	.006667	.....	.....	
15,500	62,000	.057667	.007677	.....	.....	
16,000	64,000	.068333	.010666	.....	.....	
16,500	66,000	.0867	.0184	.....	.....	
17,000	68,000	.1067	.0200	.....	.....	
17,500	70,000	.1633	.0566	.....	.....	
17,550	70,200	.2067	.0434	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	70,200
Elastic limit per square inch of original section.....	do.....	40,000
Elongation per inch after rupture.....	inch.....	0.3067
Elongation per inch under strain at elastic limit.....	do.....	.001333
Reduction in diameter at point of rupture.....	do.....	.194
Reduction in area after rupture, per centum of original section.....	.....	57.0
Position of rupture.....	1".50 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".18, ".49*, ".25	

No. 2353.

Marks, $\frac{8}{M} \frac{T_{15}}{T_8} I$ Diameter, $\frac{11}{16}$.564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
10,000	40,000	.001233	.000166	0.	.....	
10,250	41,000	.001267	.000034			Elastic limit.
10,500	42,000	.001400	.000133	.....	.....	
10,750	43,000	.001533	.000133	.....	.....	
11,000	44,000	.012333	.010800	.....	.....	
11,250	45,000	.012833	.000500	.....	.....	
11,500	46,000	.014000	.001167	.....	.....	
11,750	47,000	.014900	.000900	.....	.....	
12,000	48,000	.016367	.001467	.....	.....	
12,250	49,000	.017500	.001133	.....	.....	
12,500	50,000	.019067	.001567	.....	.....	
13,000	52,000	.022000	.002933	.....	.....	
13,500	54,000	.024667	.002667	.....	.....	
14,000	56,000	.028167	.003500	.....	.....	
14,500	58,000	.032667	.004500	.....	.....	
15,000	60,000	.037667	.005000	.....	.....	
15,500	62,000	.042833	.005166	.....	.....	
16,000	64,000	.048000	.005167	.....	.....	
16,500	66,000	.055167	.007167	.....	.....	
17,000	68,000	.063333	.008166	.....	.....	
17,500	70,000	.0733	.009967	.....	.....	
18,000	72,000	.0933	.0200	.....	.....	
18,500	74,000	.1200	.0267	.....	.....	
18,790	75,160	.1767	.0567			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	75,160
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.2933
Elongation per inch under strain at elastic limit.....	do...	.001267
Reduction in diameter at point of rupture.....	do...	.194
Reduction in area after rupture, per centum of original section.....		57.0
Position of rupture.....		1".50 from neck
Character of broken surface.....	silky; opened a crack in stem near the point of rupture	
Elongation of inch sections.....		".21, ".42, ".25

No. 2354.

Marks, $\frac{8}{M} \frac{T_{15}}{T_9 O}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000867	.000234	0.	.....	
7,500	30,000	.001000	.000133	0.	.....	
8,750	35,000	.001133	.000133	0.	.....	
10,000	40,000	.001367	.000234	.000033	.000033	
10,250	41,000	.001400	.000033			Elastic limit.
10,500	42,000	.001467	.000067	.....	.....	
10,750	43,000	.001467	0.	.....	.....	
11,000	44,000	.001567	.000100	.....	.....	
11,250	45,000	.010667	.009100	.....	.....	
11,500	46,000	.011667	.001000	.....	.....	
11,750	47,000	.012367	.000700	.....	.....	
12,000	48,000	.013400	.001033	.....	.....	
12,250	49,000	.015033	.001633	.....	.....	
12,500	50,000	.016667	.001634	.....	.....	
13,000	52,000	.019167	.002500	.....	.....	
13,500	54,000	.022333	.003166	.....	.....	
14,000	56,000	.025167	.002834	.....	.....	
14,500	58,000	.028833	.003666	.....	.....	
15,000	60,000	.032500	.003667	.....	.....	
15,500	62,000	.037200	.004700			Tensile strength.
16,000	64,000	.042333	.005133	.....	.....	
16,500	66,000	.048333	.006000	.....	.....	
17,000	68,000	.055500	.007167	.....	.....	
17,500	70,000	.066000	.010500	.....	.....	
18,000	72,000	.0767	.0107			
18,500	74,000	.0933	.0166			
19,000	76,000	.1367	.0434			
19,100	76,400	.1667	.0300			

General summary.

Tensile strength per square inch of original section	pounds..	76,400
Elastic limit per square inch of original section	do...	43,000
Elongation per inch after rupture	inch..	0.2500
Elongation per inch under strain at elastic limit	do...	.001467
Reduction in diameter at point of rupture	do ..	.195
Reduction in area after rupture, per centum of original section		57.0
Position of rupture	1".36 from neck	
Character of broken surface	silky	
Elongation of inch sections	".14, ".43*, ".20	

No. 2355.

Marks, $\frac{8 T_{15}}{M T_{10} M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000267	.000134	0.	-----	
3,750	15,000	.000467	.000200	0.	-----	
5,000	20,000	.000633	.000166	0.	-----	
6,250	25,000	.000800	.000167	0.	-----	
7,500	30,000	.000967	.000167	0.	-----	
8,750	35,000	.001133	.000166	0.	-----	
9,500	38,000	.001233	.000100	-----	-----	
9,750	39,000	.001300	.000067	-----	-----	Elastic limit.
10,000	40,000	.011667	.010367	-----	-----	
10,250	41,000	.012033	.000366	-----	-----	
10,500	42,000	.012833	.000800	-----	-----	
10,750	43,000	.013833	.001000	-----	-----	
11,000	44,000	.015667	.001834	-----	-----	
11,250	45,000	.017000	.001333	-----	-----	
11,500	46,000	.018333	.001333	-----	-----	
11,750	47,000	.019333	.001000	-----	-----	
12,000	48,000	.021000	.001667	-----	-----	
12,250	49,000	.022667	.001667	-----	-----	
12,500	50,000	.024333	.001666	-----	-----	
13,000	52,000	.027367	.003034	-----	-----	
13,500	54,000	.031667	.004300	-----	-----	
14,000	56,000	.036000	.004333	-----	-----	
14,500	58,000	.040733	.004733	-----	-----	
15,000	60,000	.046000	.005267	-----	-----	
15,500	62,000	.053333	.007333	-----	-----	
16,000	64,000	.063000	.009667	-----	-----	
16,500	66,000	.0733	.0103	-----	-----	
17,000	68,000	.0867	.0134	-----	-----	
17,500	70,000	.1033	.0166	-----	-----	
18,000	72,000	.1700	.0667	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section pounds.. 72,000
 Elastic limit per square inch of original section do... 39,000
 Elongation per inch after rupture inch.. 0.2733
 Elongation per inch under strain at elastic limit do... .001300
 Reduction in diameter at point of rupture do... .174
 Reduction in area after rupture, per centum of original section 52.2
 Position of rupture 1 inch from neck
 Character of broken surface silky
 Elongation of inch sections ".20, ".24, ".38*

1897

Report of the
Commissioner of the
State of New York

General Fund		Special Funds		Total		Grand Total	
Item	Amount	Item	Amount	Item	Amount	Item	Amount
Salaries	1,000,000	Salaries	500,000	Salaries	1,500,000	Salaries	1,500,000
Travel	100,000	Travel	50,000	Travel	150,000	Travel	150,000
Printing	50,000	Printing	25,000	Printing	75,000	Printing	75,000
Postage	25,000	Postage	12,500	Postage	37,500	Postage	37,500
Telephone	10,000	Telephone	5,000	Telephone	15,000	Telephone	15,000
Electricity	10,000	Electricity	5,000	Electricity	15,000	Electricity	15,000
Gas	10,000	Gas	5,000	Gas	15,000	Gas	15,000
Water	10,000	Water	5,000	Water	15,000	Water	15,000
Food	10,000	Food	5,000	Food	15,000	Food	15,000
Shelter	10,000	Shelter	5,000	Shelter	15,000	Shelter	15,000
Transportation	10,000	Transportation	5,000	Transportation	15,000	Transportation	15,000
Medical	10,000	Medical	5,000	Medical	15,000	Medical	15,000
Education	10,000	Education	5,000	Education	15,000	Education	15,000
Religion	10,000	Religion	5,000	Religion	15,000	Religion	15,000
Charity	10,000	Charity	5,000	Charity	15,000	Charity	15,000
Public Works	10,000	Public Works	5,000	Public Works	15,000	Public Works	15,000
Police	10,000	Police	5,000	Police	15,000	Police	15,000
Fire	10,000	Fire	5,000	Fire	15,000	Fire	15,000
Sanitation	10,000	Sanitation	5,000	Sanitation	15,000	Sanitation	15,000
Amusement	10,000	Amusement	5,000	Amusement	15,000	Amusement	15,000
Other	10,000	Other	5,000	Other	15,000	Other	15,000
Total	1,500,000	Total	750,000	Total	2,250,000	Total	2,250,000

The following table shows the amount of money received from the sale of the State of New York's lands and other property during the year 1897. The total amount received was \$1,500,000. This amount was used for the following purposes: \$1,000,000 for the State of New York's lands and other property, \$500,000 for the State of New York's lands and other property, and \$100,000 for the State of New York's lands and other property.

5a 2613.

Marked 17a

Diameter, 1.564

Sectional area, 25 square inch.

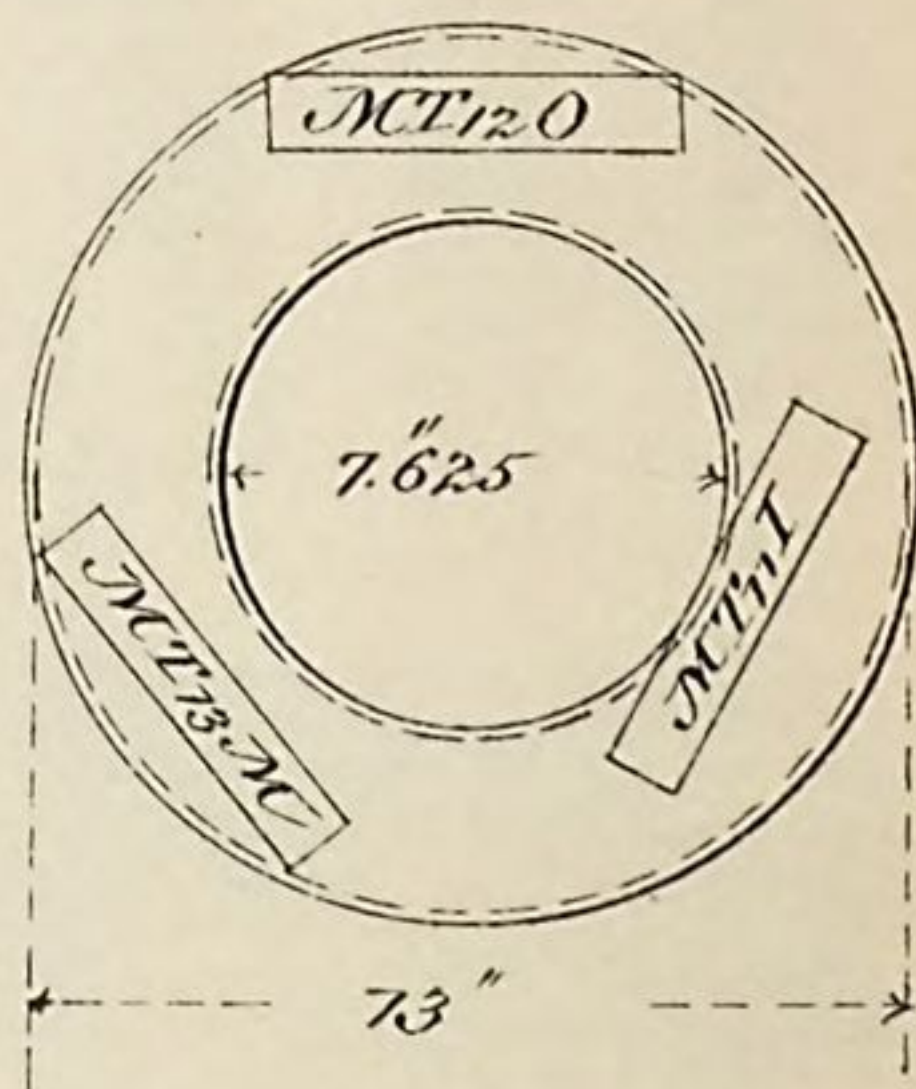
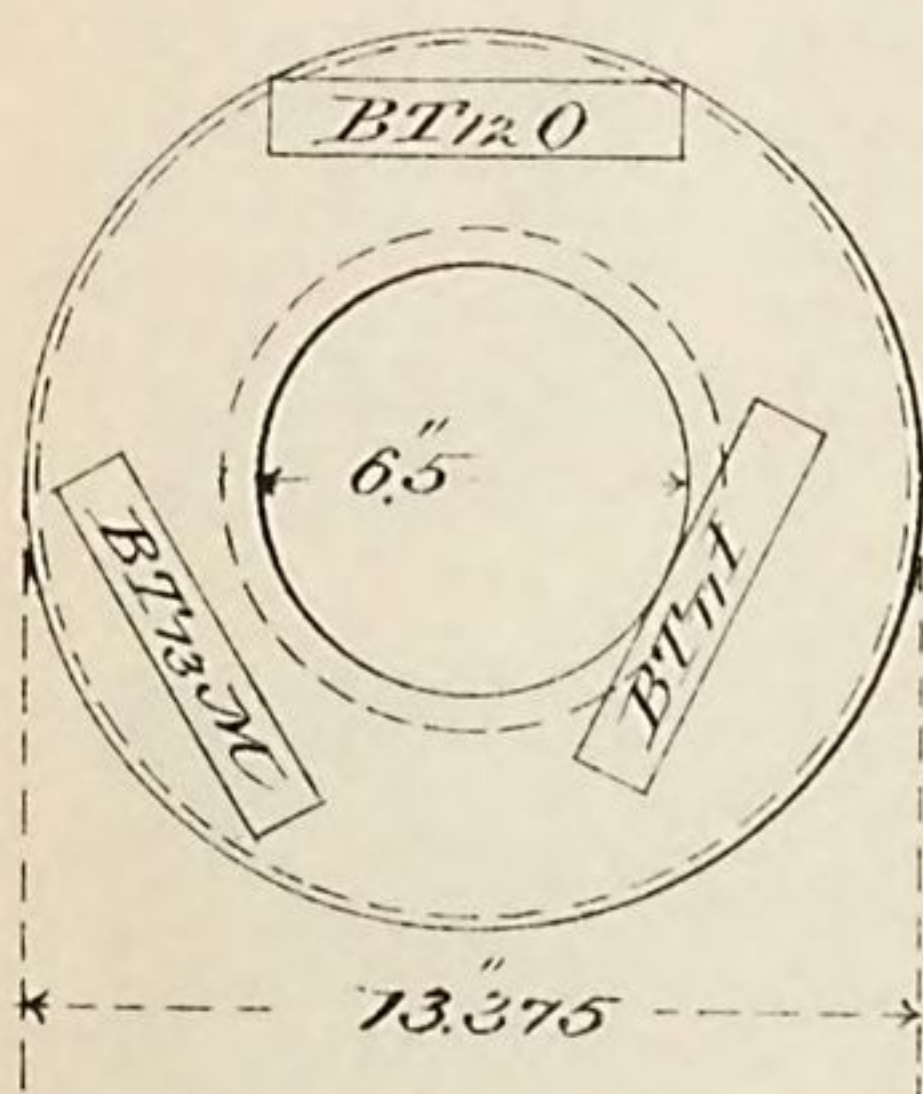
Applied loads		Elongation per inch	Elongation per inch	Elongation per inch	Elongation per inch	Remarks
Load	Per square inch					
1000	64.0	0.000	0.000	0.000	0.000	
2000	128.0	0.000	0.000	0.000	0.000	
3000	192.0	0.000	0.000	0.000	0.000	
4000	256.0	0.000	0.000	0.000	0.000	
5000	320.0	0.000	0.000	0.000	0.000	
6000	384.0	0.000	0.000	0.000	0.000	
7000	448.0	0.000	0.000	0.000	0.000	
8000	512.0	0.000	0.000	0.000	0.000	
9000	576.0	0.000	0.000	0.000	0.000	
10000	640.0	0.000	0.000	0.000	0.000	
11000	704.0	0.000	0.000	0.000	0.000	
12000	768.0	0.000	0.000	0.000	0.000	
13000	832.0	0.000	0.000	0.000	0.000	
14000	896.0	0.000	0.000	0.000	0.000	
15000	960.0	0.000	0.000	0.000	0.000	
16000	1024.0	0.000	0.000	0.000	0.000	
17000	1088.0	0.000	0.000	0.000	0.000	
18000	1152.0	0.000	0.000	0.000	0.000	
19000	1216.0	0.000	0.000	0.000	0.000	
20000	1280.0	0.000	0.000	0.000	0.000	
21000	1344.0	0.000	0.000	0.000	0.000	
22000	1408.0	0.000	0.000	0.000	0.000	
23000	1472.0	0.000	0.000	0.000	0.000	
24000	1536.0	0.000	0.000	0.000	0.000	
25000	1600.0	0.000	0.000	0.000	0.000	
26000	1664.0	0.000	0.000	0.000	0.000	
27000	1728.0	0.000	0.000	0.000	0.000	
28000	1792.0	0.000	0.000	0.000	0.000	
29000	1856.0	0.000	0.000	0.000	0.000	
30000	1920.0	0.000	0.000	0.000	0.000	
31000	1984.0	0.000	0.000	0.000	0.000	
32000	2048.0	0.000	0.000	0.000	0.000	
33000	2112.0	0.000	0.000	0.000	0.000	
34000	2176.0	0.000	0.000	0.000	0.000	
35000	2240.0	0.000	0.000	0.000	0.000	
36000	2304.0	0.000	0.000	0.000	0.000	
37000	2368.0	0.000	0.000	0.000	0.000	
38000	2432.0	0.000	0.000	0.000	0.000	
39000	2496.0	0.000	0.000	0.000	0.000	
40000	2560.0	0.000	0.000	0.000	0.000	
41000	2624.0	0.000	0.000	0.000	0.000	
42000	2688.0	0.000	0.000	0.000	0.000	
43000	2752.0	0.000	0.000	0.000	0.000	
44000	2816.0	0.000	0.000	0.000	0.000	
45000	2880.0	0.000	0.000	0.000	0.000	
46000	2944.0	0.000	0.000	0.000	0.000	
47000	3008.0	0.000	0.000	0.000	0.000	
48000	3072.0	0.000	0.000	0.000	0.000	
49000	3136.0	0.000	0.000	0.000	0.000	
50000	3200.0	0.000	0.000	0.000	0.000	



H. E. 31 40 5

New Tube No. 15 8" converted Rifle

Additional specimens



H Ex 3/ 49 2

No. 2618.

Marks, $\frac{8}{B} \frac{T_{15}}{T_{11}} I$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000600	.000200	0.	.....	
6,250	25,000	.000733	.000133	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
10,000	40,000	.001267	.000200	.....	.....	
10,250	41,000	.001333	.000066			Elastic limit.
10,500	42,000	.001367	.000034	.....	.....	
10,750	43,000	.001433	.000066	.....	.....	
11,000	44,000	.002833	.001400	.....	.....	
11,250	45,000	.004000	.001167	.....	.....	
11,500	46,000	.005667	.001667	.....	.....	
11,750	47,000	.006667	.001000	.....	.....	
12,000	48,000	.007833	.001166	.....	.....	
12,250	49,000	.008700	.000867	.....	.....	
12,500	50,000	.010033	.001333	.....	.....	
13,000	52,000	.012500	.002467	.....	.....	
13,500	54,000	.014933	.002433	.....	.....	
14,000	56,000	.017300	.002367	.....	.....	
14,500	58,000	.020400	.003100	.....	.....	
15,000	60,000	.023000	.002600	.....	.....	
15,500	62,000	.026667	.003667	.....	.....	
16,000	64,000	.029367	.002700	.....	.....	
16,500	66,000	.033067	.003700	.....	.....	
17,000	68,000	.037667	.004600	.....	.....	
17,500	70,000	.0400	.002333			Tensile strength.
18,000	72,000	.0500	.0100	.....	.....	
18,500	74,000	.0567	.0067	.....	.....	
19,000	76,000	.0667	.0100	.....	.....	
19,500	78,000	.0733	.0066	.....	.....	
20,000	80,000	.1033	.0300	.....	.....	
20,180	80,720	.1467	.0434	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	80,720
Elastic limit per square inch of original section	do...	43,000
Elongation per inch after rupture	inch..	0.2200
Elongation per inch under strain at elastic limit	do...	.001433
Reduction in diameter at point of rupture	do...	.164
Reduction in area after rupture, per centum of original section		49.7
Position of rupture	1 ".20 from neck	
Character of broken surface.....	silky; opened cracks in surface of stem	
Elongation of inch sections.....	".30*, ".23, ".13	

No. 2619.

Marks, ${}^8T_{15}$
 ${}^B T_{12} O$
Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001133	.000200	0.	.....	
10,000	40,000	.001300	.000167	.....	.....	
10,250	41,000	.001333	.000033	.....	.....	Elastic limit.
10,500	42,000	.001367	.000034	.....	.....	
10,750	43,000	.001467	.000100	.....	.....	
11,000	44,000	.003333	.001866	.....	.....	
11,250	45,000	.004867	.001534	.....	.....	
11,500	46,000	.006167	.001300	.....	.....	
11,750	47,000	.007000	.000833	.....	.....	
12,000	48,000	.008167	.001167	.....	.....	
12,250	49,000	.009500	.001333	.....	.....	
12,500	50,000	.010333	.000833	.....	.....	
13,000	52,000	.012700	.002367	.....	.....	
13,500	54,000	.014667	.001967	.....	.....	
14,000	56,000	.016900	.002233	.....	.....	
14,500	58,000	.019767	.002867	.....	.....	
15,000	60,000	.022667	.002900	.....	.....	
15,500	62,000	.025333	.002666	.....	.....	
16,000	64,000	.028467	.003134	.....	.....	
16,500	66,000	.032000	.003533	.....	.....	
17,000	68,000	.036167	.004167	.....	.....	
17,500	70,000	.040867	.004700	.....	.....	
18,000	72,000	.0467	.005833	.....	.....	
18,500	74,000	.0533	.0066	.....	.....	
19,000	76,000	.0633	.0100	.....	.....	
19,500	78,000	.0700	.0067	.....	.....	
20,000	80,000	.0900	.0200	.....	.....	
20,460	81,840	.1500	.0600	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original sectionpounds.. 81,840
 Elastic limit per square inch of original section.....do .. 42,000
 Elongation per inch after ruptureinch . 0.2233
 Elongation per inch under strain at elastic limitdo... .001367
 Reduction in diameter at point of rupturedo .. .184
 Reduction in area after rupture, per centum of original section 54.6
 Position of ruptureat middle of stem
 Character of broken surface..... silky
 Elongation of inch sections.....".10, ".42*, ".15

No. 2620.

Marks, $\frac{8 T_{15}}{B T_{13} M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000633	.000200	0.	.....	
6,250	25,000	.000767	.000134	0.	.....	
7,500	30,000	.000967	.000200	0.	.....	
8,750	35,000	.001100	.000133	0.	.....	
10,000	40,000	.001333	.000233	.....	.....	
10,250	41,000	.001400	.000067	.....	.....	Elastic limit.
10,500	42,000	.001467	.000067	.....	.....	
10,750	43,000	.001833	.000366	.....	.....	
11,000	44,000	.003700	.001867	.....	.....	
11,250	45,000	.004667	.000967	.....	.....	
11,500	46,000	.006000	.001333	.....	.....	
11,750	47,000	.007033	.001033	.....	.....	
12,000	48,000	.008167	.001134	.....	.....	
12,250	49,000	.009333	.001166	.....	.....	
12,500	50,000	.010433	.001100	.....	.....	
13,000	52,000	.013000	.002567	.....	.....	
13,500	54,000	.015000	.002000	.....	.....	
14,000	56,000	.017367	.002367	.....	.....	
14,500	58,000	.020200	.002833	.....	.....	
15,000	60,000	.023000	.002800	.....	.....	
15,500	62,000	.026667	.003667	.....	.....	
16,000	64,000	.030000	.003333	.....	.....	
16,500	66,000	.034000	.004000	.....	.....	
17,000	68,000	.038333	.004333	.....	.....	
17,500	70,000	.0400	.001667	.....	.....	
18,000	72,000	.0500	.0100	.....	.....	
18,500	74,000	.0567	.0067	.....	.....	
19,000	76,000	.0667	.0100	.....	.....	
19,500	78,000	.0767	.0100	.....	.....	
20,000	80,000	.1033	.0266	.....	.....	
20,190	80,760	.1333	.0300	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section pounds .. 80,760
 Elastic limit per square inch of original section do .. 42,000
 Elongation per inch after rupture inch .. 0.2033
 Elongation per inch under strain at elastic limit do .. .001467
 Reduction in diameter at point of rupture do .. .164
 Reduction in area after rupture, per centum of original section 49.7
 Position of rupture ".90 from neck
 Character of broken surface silky
 Elongation of inch sections ".08, ".15, ".32*

No. 2621.

Marks, $\frac{8}{M} T_{15}$ Diameter, $\frac{11}{16}$ inch.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000600	.000200	0.	.....	
6,250	25,000	.000733	.000133	0.	.....	
7,500	30,000	.000933	.000200	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
10,000	40,000	.001300	.000200	0.	.....	
10,250	41,000	.001333	.000033	.....	.....	
10,500	42,000	.001367	.000034	.....	.....	
10,750	43,000	.001400	.000033	.....	.....	
11,000	44,000	.001467	.000067	.....	.....	
11,250	45,000	.001533	.000066	.....	.....	Elastic limit.
11,500	46,000	.001700	.000167	.....	.....	
11,750	47,000	.001900	.000200	.....	.....	
12,000	48,000	.002467	.000567	.....	.....	
12,250	49,000	.003333	.000866	.....	.....	
12,500	50,000	.004667	.001334	.....	.....	
13,000	52,000	.007167	.002500	.....	.....	
13,500	54,000	.009167	.002000	.....	.....	
14,000	56,000	.011267	.002100	.....	.....	
14,500	58,000	.013433	.002166	.....	.....	
15,000	60,000	.015667	.002234	.....	.....	
15,500	62,000	.018000	.002333	.....	.....	
16,000	64,000	.020500	.002500	.....	.....	
16,500	66,000	.023167	.002667	.....	.....	
17,000	68,000	.026000	.002833	.....	.....	
17,500	70,000	.029167	.003167	.....	.....	
18,000	72,000	.032500	.003333	.....	.....	
18,500	74,000	.036233	.003733	.....	.....	
19,000	76,000	.040500	.004267	.....	.....	
19,500	78,000	.0433	.0028	.....	.....	
20,000	80,000	.0533	.0100	.....	.....	
20,500	82,000	.0633	.0100	.....	.....	
21,000	84,000	.0700	.0067	.....	.....	
21,500	86,000	.0900	.0200	.....	.....	
21,920	87,680	.1367	.0467	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	87,680
Elastic limit per square inch of original section.....	do...	45,000
Elongation per inch after rupture.....	inch..	0.2233
Elongation per inch under strain at elastic limit.....	do...	.001533
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	"	.85 from neck
Character of broken surface.....		silky
Elongation of inch sections.....	"	.36, ".13, ".18

No. 2622.

Marks, $8 T_{15}$
 $M T_{12} O$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000300	.000200	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000600	.000133	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
10,000	40,000	.001300	.000200	0.	.....	
11,250	45,000	.001533	.000233	.....	.....	
11,500	46,000	.001567	.000034			Elastic limit.
11,750	47,000	.001600	.000033	.....	.....	
12,000	48,000	.002000	.000400	.....	.....	
12,250	49,000	.002833	.000833	.....	.....	
12,500	50,000	.003433	.000600	.....	.....	
13,000	52,000	.005333	.001900	.....	.....	
13,500	54,000	.007667	.002334	.....	.....	
14,000	56,000	.009833	.002166	.....	.....	
14,500	58,000	.012000	.002167	.....	.....	
15,000	60,000	.014000	.002000	.....	.....	
15,500	62,000	.016333	.002333			Tensile strength.
16,000	64,000	.018667	.002334	.....	.....	
16,500	66,000	.021000	.002333	.....	.....	
17,000	68,000	.023733	.002733	.....	.....	
17,500	70,000	.026667	.002934	.....	.....	
18,000	72,000	.030667	.004000	.....	.....	
18,500	74,000	.035000	.004333	.....	.....	
19,000	76,000	.039000	.004000	.....	.....	
19,500	78,000	.043333	.004333	.....	.....	
20,000	80,000	.0467	.003367	.....	.....	
20,500	82,000	.0567	.0100	.....	.....	
21,000	84,000	.0633	.0066	.....	.....	
21,500	86,000	.0767	.0134	.....	.....	
21,980	87,920	.1067	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	87,920
Elastic limit per square inch of original section.....	do...	47,000
Elongation per inch after rupture.....	inch..	0.1833
Elongation per inch under strain at elastic limit.....	do...	.001600
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	1".10 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".07, ".14, ".34*	

No. 2623.

Marks, $\overset{8}{M} \overset{T_{15}}{T_{13}} \overset{M}{M}$
Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000500	.000200	0.	.....	
5,000	20,000	.000700	.000200	0.	.....	
6,250	25,000	.000867	.000167	0.	.....	
7,500	30,000	.001033	.000166	0.	.....	
8,750	35,000	.001200	.000167	0.	.....	
10,000	40,000	.001400	.000200	.000067	.000067	
10,250	41,000	.001467	.000067			Elastic limit.
10,500	42,000	.001533	.000066	.....	.....	
10,750	43,000	.001600	.000067	.....	.....	
11,000	44,000	.001667	.000067	.....	.....	
11,250	45,000	.001700	.000033	.....	.....	
11,500	46,000	.001833	.000133	.....	.....	
11,750	47,000	.002033	.000200	.....	.....	
12,000	48,000	.002967	.000934	.....	.....	
12,250	49,000	.003667	.000700	.....	.....	
12,500	50,000	.005267	.001600	.....	.....	
13,000	52,000	.007100	.001833	.....	.....	
13,500	54,000	.010000	.002900	.....	.....	
14,000	56,000	.012000	.002000	.....	.....	
14,500	58,000	.014100	.002100	.....	.....	
15,000	60,000	.016333	.002233	.....	.....	
15,500	62,000	.018833	.002500	.....	.....	
16,000	64,000	.021167	.002334	.....	.....	
16,500	66,000	.024000	.002833	.....	.....	
17,000	68,000	.027333	.003333	.....	.....	
17,500	70,000	.030000	.002667	.....	.....	
18,000	72,000	.034000	.004000	.....	.....	
18,500	74,000	.038200	.004200	.....	.....	
19,000	76,000	.043067	.004867	.....	.....	
19,500	78,000	.0467	.003633	.....	.....	
20,000	80,000	.0567	.0100	.....	.....	
20,500	82,000	.0667	.0100	.....	.....	
21,000	84,000	.0767	.0100	.....	.....	
21,500	86,000	.1033	.0266			Tensile strength.
21,520	86,080	.1267	.0234	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	86,080
Elastic limit per square inch of original section.....	do...	45,000
Elongation per inch after rupture.....	inch..	0.1933
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do...	.154
Reduction in area after rupture, per centum of original section.....		47.2
Position of rupture.....	1".50 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".10, ".34*, ".1	

NEW TUBE No. 16.

No. 2365.

Marks, $\frac{8}{B} \frac{T_{16}}{T_4 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000567	.000134	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,700	35,000	.001067	.000167	0.	.....	
9,500	38,000	.001233	.000166	.....	.....	Elastic limit.
9,750	39,000	.001300	.000067	.....	.....	
10,000	40,000	.006000	.004700	.....	.....	
10,250	41,000	.006667	.000667	.....	.....	
10,500	42,000	.007833	.001166	.....	.....	
10,750	43,000	.008800	.000967	.....	.....	
11,000	44,000	.010200	.001400	.....	.....	
11,250	45,000	.011500	.001300	.....	.....	
11,500	46,000	.012500	.001000	.....	.....	
11,750	47,000	.013733	.001233	.....	.....	
12,000	48,000	.015033	.001300	.....	.....	
12,250	49,000	.016500	.001467	.....	.....	
12,500	50,000	.018167	.001667	.....	.....	
13,000	52,000	.021400	.003233	.....	.....	
13,500	54,000	.025000	.003600	.....	.....	
14,000	56,000	.028367	.003367	.....	.....	
14,500	58,000	.032500	.004133	.....	.....	
15,000	60,000	.034400	.001900	.....	.....	
15,500	62,000	.043333	.008933	.....	.....	
16,000	64,000	.050667	.007334	.....	.....	
16,500	66,000	.059333	.008666	.....	.....	
17,000	68,000	.068000	.008667	.....	.....	
17,500	70,000	.0933	.0253	.....	.....	
18,000	72,000	.1400	.0467	.....	.....	Tensile strength.
		.1667	.0267	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	72,000
Elastic limit per square inch of original section	do...	39,000
Elongation per inch after rupture	inch..	0.1933
Elongation per inch under strain at elastic limit	do...	.001300
Reduction in diameter at point of rupture	do ..	.084
Reduction in area after rupture, per centum of original section		27.6
Position of rupture	1".65 from neck	
Character of broken surface, granular; radiating from a dull spot at the circumference; opened small surface cracks in stem.		
Elongation of inch sections	"16, ".28*, ".14	

No. 2366.

Marks, $\frac{8}{B} T_{16}$
 $\frac{5}{T_5} O$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	-.000033	-.000033	
2,500	10,000	.000267	.000167	-.000033	-----	
3,750	15,000	.000367	.000100	-.000067	0.	
5,000	20,000	.000500	.000133	-.000067	-.000034	
6,250	25,000	.000633	.000133	-.000067	0.	
7,500	30,000	.000800	.000167	-.000067	0.	
8,750	35,000	.000967	.000167	-.000067	0.	
9,000	36,000	.001000	.000033	-----	0.	
9,250	37,000	.001067	.000067	-----	-----	Elastic limit.
9,500	38,000	.001133	.000066	-----	-----	
9,750	39,000	.001500	.000367	-----	-----	
10,000	40,000	.003400	.001900	-----	-----	
10,250	41,000	.005100	.001700	-----	-----	
10,500	42,000	.006667	.001567	-----	-----	
10,750	43,000	.007333	.000666	-----	-----	
11,000	44,000	.008500	.001167	-----	-----	
11,250	45,000	.009500	.001000	-----	-----	
11,500	46,000	.010500	.001000	-----	-----	
11,750	47,000	.011567	.001067	-----	-----	Tensile strength.
12,000	48,000	.012700	.001133	-----	-----	
12,250	49,000	.013733	.001033	-----	-----	
12,500	50,000	.015100	.001367	-----	-----	
13,000	52,000	.018167	.003067	-----	-----	
13,500	54,000	.021000	.002833	-----	-----	
14,000	56,000	.023733	.002733	-----	-----	
14,500	58,000	.027000	.003267	-----	-----	
15,000	60,000	.030667	.003667	-----	-----	
15,500	62,000	.034000	.003333	-----	-----	
16,000	64,000	.039333	.005333	-----	-----	
16,500	66,000	.044867	.005534	-----	-----	
17,000	68,000	.052000	.007133	-----	-----	
17,500	70,000	.060000	.008000	-----	-----	
18,000	72,000	.0733	.0133	-----	-----	
18,500	74,000	.0900	.0167	-----	-----	
19,000	76,000	.1367	.0467	-----	-----	
19,030	76,120	.1600	.0233	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	76,120
Elastic limit per square inch of original section.....	do ..	38,000
Elongation per inch after rupture	inch..	0.2233
Elongation per inch under strain at elastic limit	do...	.001133
Reduction in diameter at point of rupture.....	do...	.114
Reduction in area after rupture, per centum of original section		36.4
Position of rupture.....	1 inch from neck	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	".30*, ".23, ".14	

No. 2367.

Marks, $\frac{8}{B} \frac{T_{16}}{T_6} M$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive Elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
10,000	40,000	.001233	.000133	0.	.....	Elastic limit.
10,250	41,000	.001367	.000134	.....	.....	
10,500	42,000	.001833	.000466	.....	.....	
10,750	43,000	.003067	.001234	.....	.....	
11,000	44,000	.006067	.003000	.....	.....	
11,250	45,000	.007333	.001266	.....	.....	
11,500	46,000	.008333	.001000	.....	.....	
11,750	47,000	.009500	.001167	.....	.....	
12,000	48,000	.010400	.000900	.....	.....	
12,250	49,000	.011733	.01333	.....	.....	
12,500	50,000	.012667	.000934	.....	.....	
12,750	51,000	.014167	.001500	.....	.....	
13,000	52,000	.017067	.02900	.....	.....	
13,500	54,000	.020000	.002933	.....	.....	
14,000	56,000	.023000	.003000	.....	.....	
14,500	58,000	.026333	.003333	.....	.....	
15,000	60,000	.030000	.03667	.....	.....	
15,500	62,000	.034167	.004167	.....	.....	
16,000	64,000	.039333	.005166	.....	.....	
16,500	66,000	.044667	.005334	.....	.....	
17,000	68,000	.052000	.007333	.....	.....	
17,500	70,000	.061667	.009667	.....	.....	
18,000	72,000	.0733	.011633	.....	.....	
18,500	74,000	.0967	.0234	.....	.....	
18,880	75,520	.1433	.0466	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	75,520
Elastic limit per square inch of original section.....	do...	40,000
Elongation per inch after rupture.....	inch..	0.2433
Elongation per inch under strain at elastic limit.....	do...	.001233
Reduction in diameter at point of rupture.....	do...	.195
Reduction in area after rupture, per centum of original section.....		57.0
Position of rupture.....	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".43*, ".20, ".13	

No. 2368.

Marks, ⁸T₁₆
M T₄ I
Diameter, ".564.
Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000700	.000133	0.	.....	
7,500	30,000	.000900	.000200	0.	.....	
8,750	35,000	.001033	.000133	0.	.....	
9,000	36,000	.001067	.000034	.....	.....	
9,250	37,000	.001100	.000033	.....	.....	
9,500	38,000	.001167	.000067	.....	.....	
9,750	39,000	.001233	.000066	.....	.....	Elastic limit.
10,000	40,000	.001433	.000200	.....	.....	
10,250	41,000	.001667	.000234	.....	.....	
10,500	42,000	.002433	.000766	.....	.....	
10,750	43,000	.003167	.000734	.....	.....	
11,000	44,000	.004733	.001556	.....	.....	
11,250	45,000	.006067	.001334	.....	.....	
11,500	46,000	.007400	.001333	.....	.....	
11,750	47,000	.008667	.001267	.....	.....	
12,000	48,000	.009667	.001000	.....	.....	
12,250	49,000	.010433	.000766	.....	.....	
12,500	50,000	.011833	.001400	.....	.....	
13,000	52,000	.014033	.002200	.....	.....	
13,500	54,000	.017000	.002967	.....	.....	
14,000	56,000	.019667	.002667	.....	.....	
14,500	58,000	.022333	.002666	.....	.....	
15,000	60,000	.025167	.002834	.....	.....	
15,500	62,000	.028833	.003666	.....	.....	
16,000	64,000	.032667	.003834	.....	.....	
16,500	66,000	.036833	.004166	.....	.....	
17,000	68,000	.041867	.005034	.....	.....	
17,500	70,000	.048833	.006966	.....	.....	
18,000	72,000	.058667	.009834	.....	.....	
18,500	74,000	.072000	.013333	.....	.....	
19,000	76,000	.0900	.0180	.....	.....	
19,420	77,680	.1400	.0500	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	77,680
Elastic limit per square inch of original section.....	do...	39,000
Elongation per inch after rupture.....	inch..	0.2033
Elongation per inch under strain at elastic limit.....	do...	.001233
Reduction in diameter at point of rupture.....	do...	.134
Reduction in area after rupture, per centum of original section.....		41.9
Position of rupture.....	1 inch from neck	
Character of broken surface.....	granular, 70 per centum; silky, 30 per centum	
Elongation of inch sections.....	".35", ".14", ".12	

No. 2369.

Marks, $\frac{8}{M} \frac{T_{16}}{T_{50}}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000600	.000133	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
10,000	40,000	.001300	.000200	0.	.....	
10,250	41,000	.001333	.000033			Elastic limit.
10,500	42,000	.001433	.000100	.....	.....	
10,750	43,000	.001633	.000200	.....	.....	
11,000	44,000	.003333	.001700	.....	.....	
11,250	45,000	.005000	.001667	.....	.....	
11,500	46,000	.006200	.001200	.....	.....	
11,750	47,000	.007167	.000967	.....	.....	
12,000	48,000	.007833	.000666	.....	.....	
12,250	49,000	.008500	.000667	.....	.....	
12,500	50,000	.010000	.001500	.....	.....	
13,000	52,000	.012100	.002100	.....	.....	
13,500	54,000	.014667	.002567	.....	.....	
14,000	56,000	.017333	.002666	.....	.....	
14,500	58,000	.019833	.002500	.....	.....	
15,000	60,000	.022833	.003000	.....	.....	
15,500	62,000	.025667	.002834	.....	.....	
16,000	64,000	.029167	.003500	.....	.....	
16,500	66,000	.032667	.003500	.....	.....	
17,000	68,000	.036867	.004200	.....	.....	
17,500	70,000	.042167	.005300	.....	.....	
18,000	72,000	.048333	.005166	.....	.....	
18,500	74,000	.057333	.009000	.....	.....	
19,000	76,000	.0667	.009367	.....	.....	
19,500	78,000	.0800	.0133	.....	.....	
20,000	80,000	.1133	.0333	.....	.....	
20,110	80,440	.1467	.0334			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	80,440
Elastic limit per square inch of original section	do...	42,000
Elongation per inch after rupture	inch..	0.2467
Elongation per inch under strain at elastic limit	do...	.001433
Reduction in diameter at point of rupture	do...	.174
Reduction in area after rupture, per centum of original section		52.2
Position of rupture	1".65 from neck	
Character of broken surface	silky	
Elongation of inch sections	".15, ".43*, ".16	

H. Ex. 31—42

No. 2370.

Marks, $\begin{smallmatrix} 8 & T_{16} \\ M & T_6 M \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000367	.000134	0.	.....	
5,000	20,000	.000500	.000133	0.	.....	
6,250	25,000	.000633	.000133	0.	.....	
7,500	30,000	.000800	.000167	0.	.....	
8,750	35,000	.000967	.000167	0.	.....	
10,000	40,000	.001133	.000166	0.	.....	Elastic limit.
10,250	41,000	.001267	.000134	.....	.....	
10,500	42,000	.001500	.000233	.....	.....	
10,750	43,000	.002167	.000667	.....	.....	
11,000	44,000	.004133	.001966	.....	.....	
11,250	45,000	.005733	.001600	.....	.....	
11,500	46,000	.006667	.000934	.....	.....	
11,750	47,000	.007700	.001033	.....	.....	
12,000	48,000	.008667	.000967	.....	.....	
12,250	49,000	.009700	.001033	.....	.....	
12,500	50,000	.011000	.001300	.....	.....	
13,000	52,000	.013500	.002500	.....	.....	
13,500	54,000	.015733	.002233	.....	.....	
14,000	56,000	.018333	.002600	.....	.....	
14,500	58,000	.021500	.003167	.....	.....	
15,000	60,000	.024667	.003167	.....	.....	
15,500	62,000	.027700	.003033	.....	.....	
16,000	64,000	.031667	.003967	.....	.....	
16,500	66,000	.036167	.004500	.....	.....	
17,000	68,000	.041333	.005166	.....	.....	
17,500	70,000	.048500	.007167	.....	.....	
18,000	72,000	.056333	.007833	.....	.....	
18,500	74,000	.067833	.011500	.....	.....	
19,000	76,000	.0900	.022167	.....	.....	
19,500	78,000	.1400	.0500	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	78,000
Elastic limit per square inch of original section.....	do....	40,000
Elongation per inch after rupture.....	inch..	0.2333
Elongation per inch under strain at elastic limit.....	do....	.001133
Reduction in diameter at point of rupture.....	do....	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	1".5 from neck	
Character of broken surface.....	silky ; trace of granulation	
Elongation of inch sections.....	" .17, ".37*, ".16	

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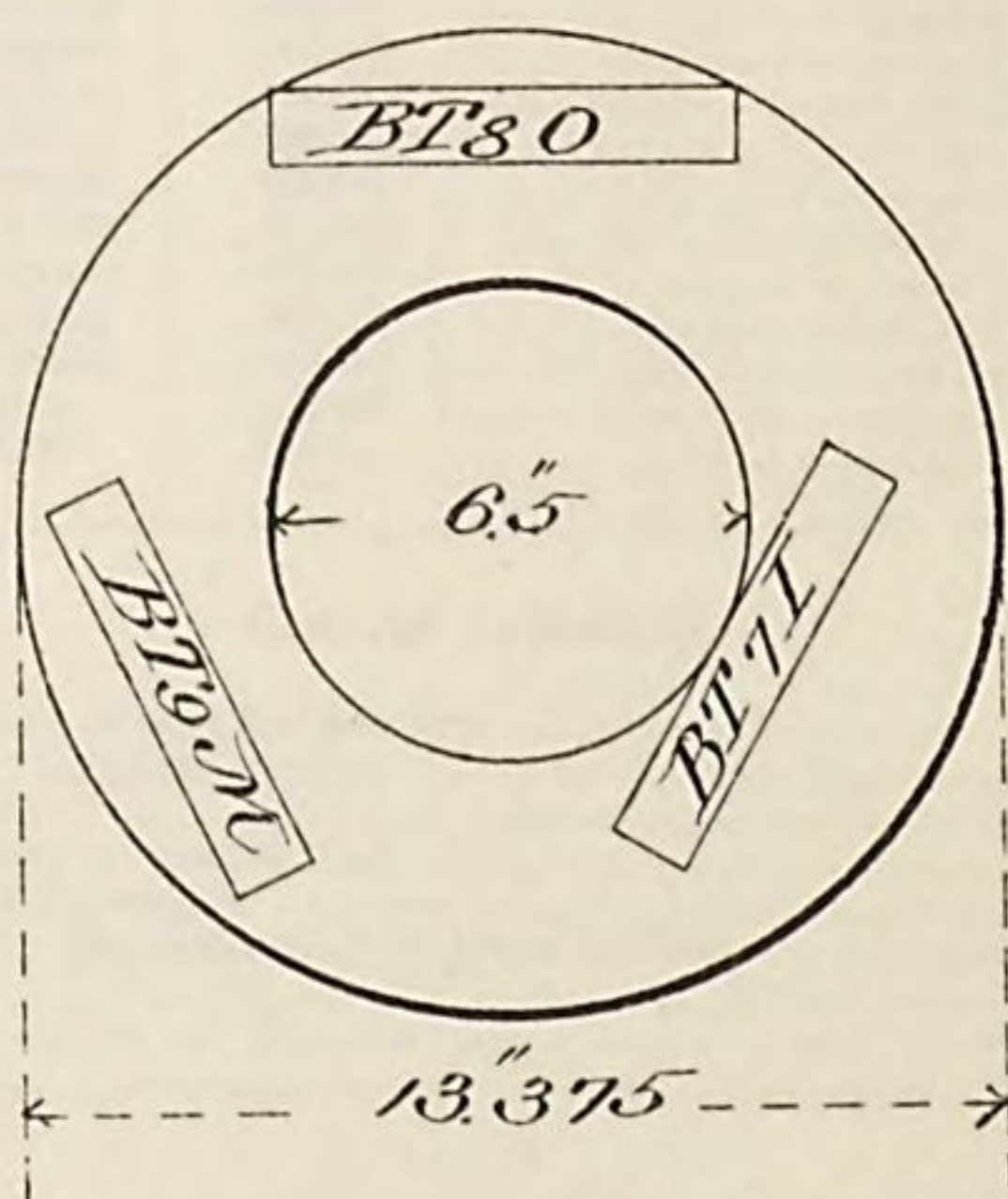
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H. E. 31 40 2

New Tube No. 76 8" converted Rifle

Additional specimens



H Ex 3 / 49 2

No. 2555.

Marks, $\frac{8}{B} \frac{T_{16}}{T_7 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	.....	.....	
10,000	40,000	.001233	.000166	.....	.....	
10,250	41,000	.001300	.000067	.....	.....	
10,500	42,000	.001367	.000067	.....	.....	
10,750	43,000	.001400	.000033	.....	.....	Elastic limit.
11,000	44,000	.001733	.000333	.....	.....	
11,250	45,000	.002800	.001067	.....	.....	
11,500	46,000	.004067	.001267	.....	.....	
11,750	47,000	.007100	.003033	.....	.....	
12,000	48,000	.008667	.001567	.....	.....	
12,250	49,000	.010333	.001666	.....	.....	
12,500	50,000	.011067	.000734	.....	.....	
13,000	52,000	.013733	.002666	.....	.....	
13,500	54,000	.016733	.003000	.....	.....	
14,000	56,000	.020067	.003334	.....	.....	
14,500	58,000	.023000	.002933	.....	.....	
15,000	60,000	.026533	.003533	.....	.....	
15,500	62,000	.030400	.003867	.....	.....	
16,000	64,000	.034867	.004467	.....	.....	
16,500	66,000	.040000	.005133	.....	.....	
17,000	68,000	.046667	.006667	.....	.....	
17,500	70,000	.0567	.010033	.....	.....	
18,000	72,000	.0667	.0100	.....	.....	
18,500	74,000	.0900	.0233	.....	.....	
19,000	76,000	.1300	.0400	.....	.....	
19,020	76,080	.1467	.0167	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	76,080
Elastic limit per square inch of original section	do...	43,000
Elongation per inch after rupture	inch..	0.1767
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.074
Reduction in area after rupture, per centum of original section		24.6
Position of rupture	1".50 from neck	
Character of broken surface, granular; radiating from a flaky spot at the circumference; opened cracks in surface of stem.		
Elongation of inch sections	".17, ".23*, ".13	

No. 2556.

Marks, $\frac{8}{B} \frac{T_{16}}{T_{80}}$
Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000300	.000200	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	.....	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001267	.000034			Elastic limit.
10,000	40,000	.001400	.000133	.....	.....	
10,250	41,000	.001567	.000167	.....	.....	
10,500	42,000	.003700	.002133	.....	.....	
10,750	43,000	.004700	.001000	.....	.....	
11,000	44,000	.006500	.001800	.....	.....	
11,250	45,000	.007500	.001000	.....	.....	
11,500	46,000	.008833	.001333	.....	.....	
11,750	47,000	.009767	.000934	.....	.....	
12,000	48,000	.010867	.001100	.....	.....	
12,250	49,000	.011933	.001066	.....	.....	
12,500	50,000	.013367	.001434	.....	.....	
13,000	52,000	.015667	.002300	.....	.....	
13,500	54,000	.018567	.002933	.....	.....	
14,000	56,000	.021500	.002933	.....	.....	
14,500	58,000	.025000	.003500	.....	.....	
15,000	60,000	.028167	.003167	.....	.....	
15,500	62,000	.032000	.003833	.....	.....	
16,000	64,000	.036333	.004333	.....	.....	
16,500	66,000	.040833	.004500	.....	.....	
17,000	68,000	.0500	.009167	.....	.....	
17,500	70,000	.0600	.0100	.....	.....	
18,000	72,000	.0700	.0100	.....	.....	
18,500	74,000	.0800	.0100	.....	.....	
19,000	76,000	.1133	.0333			Tensile strength.
19,160	76,640	.1567	.0434	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	76,640
Elastic limit per square inch of original section.....	do...	39,000
Elongation per inch after rupture.....	inch..	0.2633
Elongation per inch under strain at elastic limit.....	do...	.001267
Reduction in diameter at point of rupture.....	do...	.184
Reduction in area after rupture, per centum of original section.....	.....	54.6
Position of rupture.....	1".5 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".18, ".42*, ".19	

No. 2557.

Marks, $\begin{smallmatrix} 8 T_{16} \\ B T_9 M \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000300	.000200	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000800	.000200	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	.....	.....	
9,000	36,000	.001200	.000067	.....	.....	
9,250	37,000	.001233	.000033	.....	.....	
9,500	38,000	.001267	.000034	.....	.....	
9,750	39,000	.001333	.000066	.....	.....	
10,000	40,000	.001367	.000034	.....	.....	Elastic limit.
10,250	41,000	.001467	.000100	.....	.....	
10,500	42,000	.001667	.003200	.....	.....	
10,750	43,000	.007333	.002666	.....	.....	
11,000	44,000	.008000	.000667	.....	.....	
11,250	45,000	.008800	.000800	.....	.....	
11,500	46,000	.010000	.001200	.....	.....	
11,750	47,000	.010833	.000833	.....	.....	
12,000	48,000	.012233	.001400	.....	.....	
12,250	49,000	.013367	.001134	.....	.....	
12,500	50,000	.014667	.001300	.....	.....	
13,000	52,000	.017067	.002400	.....	.....	
13,500	54,000	.020000	.002933	.....	.....	
14,000	56,000	.023000	.003000	.....	.....	
14,500	58,000	.026667	.003667	.....	.....	
15,000	60,000	.030000	.003333	.....	.....	
15,500	62,000	.034000	.004000	.....	.....	
16,000	64,000	.038667	.004667	.....	.....	
16,500	66,000	.0433	.004633	.....	.....	
17,000	68,000	.0533	.0100	.....	.....	
17,500	70,000	.0633	.0100	.....	.....	
18,000	72,000	.0733	.0100	.....	.....	
18,500	74,000	.0933	.0200	.....	.....	
19,000	76,000	.1267	.0334	.....	.....	
19,080	76,320	.1733	.0466	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	76,320
Elastic limit per square inch of original section.....	do...	40,000
Elongation per inch after rupture.....	inch..	0.2400
Elongation per inch under strain at elastic limit	do ..	.001367
Reduction in diameter at point of rupture.....	do...	.134
Reduction in area after rupture, per centum of original section .....	.....	41.9
Position of rupture	1".6 from neck	
Character of broken surface.....	.....	silky
Elongation of inch sections.....	.....	".15, ".40*, ".17

No. 2012

Marks, 170

Diameter, .564

Sectional area, .25 square inch.

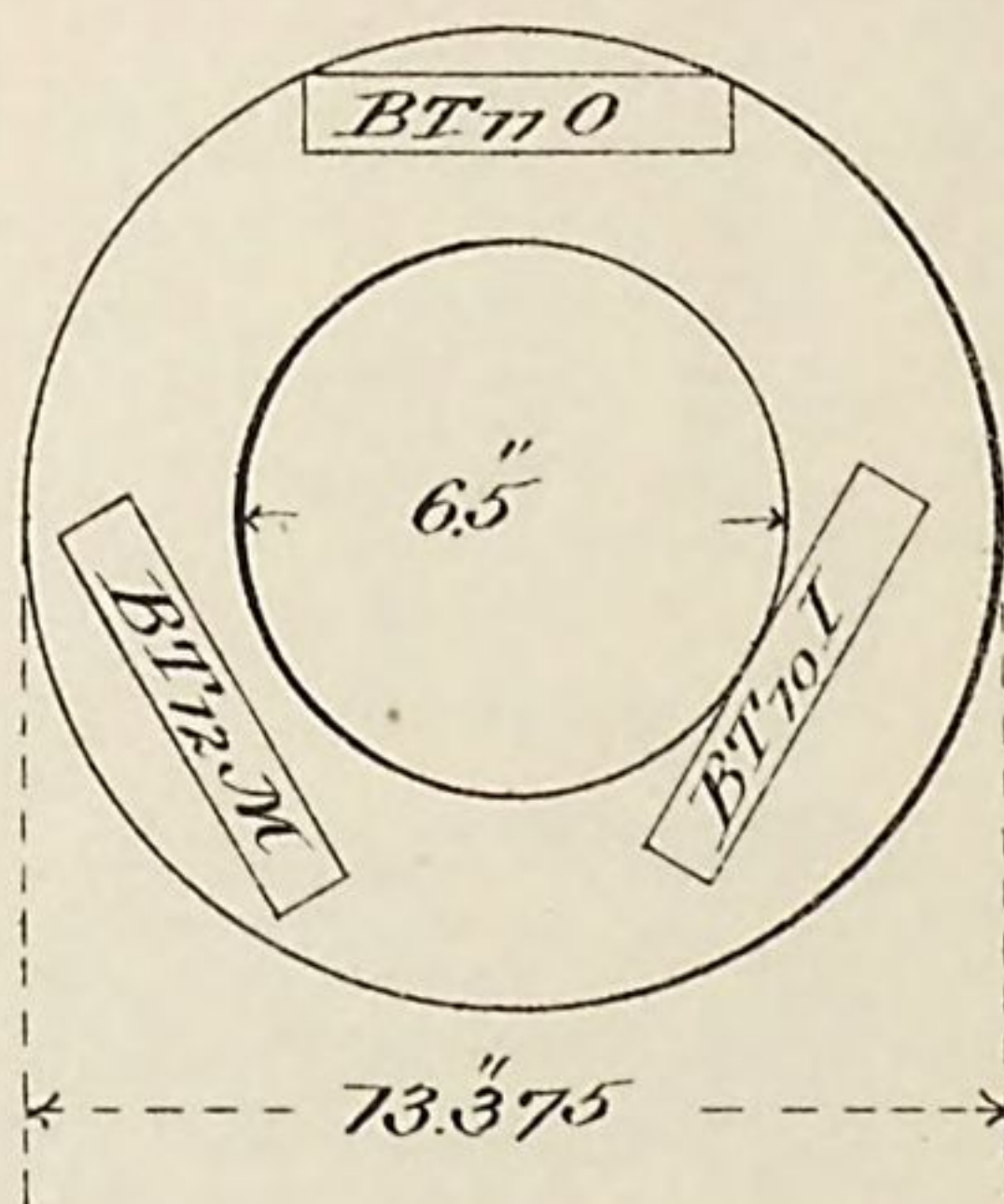
Applied loads		Elongation per inch	Reduction of area per inch	Permanent set	Maximum permanent set	Remarks
Total	Per square inch					
100	100	0.00	0.00	0.00	0.00	
200	200	0.00	0.00	0.00	0.00	
300	300	0.00	0.00	0.00	0.00	
400	400	0.00	0.00	0.00	0.00	
500	500	0.00	0.00	0.00	0.00	
600	600	0.00	0.00	0.00	0.00	
700	700	0.00	0.00	0.00	0.00	
800	800	0.00	0.00	0.00	0.00	
900	900	0.00	0.00	0.00	0.00	
1000	1000	0.00	0.00	0.00	0.00	
1100	1100	0.00	0.00	0.00	0.00	
1200	1200	0.00	0.00	0.00	0.00	
1300	1300	0.00	0.00	0.00	0.00	
1400	1400	0.00	0.00	0.00	0.00	
1500	1500	0.00	0.00	0.00	0.00	
1600	1600	0.00	0.00	0.00	0.00	
1700	1700	0.00	0.00	0.00	0.00	
1800	1800	0.00	0.00	0.00	0.00	
1900	1900	0.00	0.00	0.00	0.00	
2000	2000	0.00	0.00	0.00	0.00	
2100	2100	0.00	0.00	0.00	0.00	
2200	2200	0.00	0.00	0.00	0.00	
2300	2300	0.00	0.00	0.00	0.00	
2400	2400	0.00	0.00	0.00	0.00	
2500	2500	0.00	0.00	0.00	0.00	
2600	2600	0.00	0.00	0.00	0.00	
2700	2700	0.00	0.00	0.00	0.00	
2800	2800	0.00	0.00	0.00	0.00	
2900	2900	0.00	0.00	0.00	0.00	
3000	3000	0.00	0.00	0.00	0.00	
3100	3100	0.00	0.00	0.00	0.00	
3200	3200	0.00	0.00	0.00	0.00	
3300	3300	0.00	0.00	0.00	0.00	
3400	3400	0.00	0.00	0.00	0.00	
3500	3500	0.00	0.00	0.00	0.00	
3600	3600	0.00	0.00	0.00	0.00	
3700	3700	0.00	0.00	0.00	0.00	
3800	3800	0.00	0.00	0.00	0.00	
3900	3900	0.00	0.00	0.00	0.00	
4000	4000	0.00	0.00	0.00	0.00	
4100	4100	0.00	0.00	0.00	0.00	
4200	4200	0.00	0.00	0.00	0.00	
4300	4300	0.00	0.00	0.00	0.00	
4400	4400	0.00	0.00	0.00	0.00	
4500	4500	0.00	0.00	0.00	0.00	
4600	4600	0.00	0.00	0.00	0.00	
4700	4700	0.00	0.00	0.00	0.00	
4800	4800	0.00	0.00	0.00	0.00	
4900	4900	0.00	0.00	0.00	0.00	
5000	5000	0.00	0.00	0.00	0.00	
5100	5100	0.00	0.00	0.00	0.00	
5200	5200	0.00	0.00	0.00	0.00	
5300	5300	0.00	0.00	0.00	0.00	
5400	5400	0.00	0.00	0.00	0.00	
5500	5500	0.00	0.00	0.00	0.00	
5600	5600	0.00	0.00	0.00	0.00	
5700	5700	0.00	0.00	0.00	0.00	
5800	5800	0.00	0.00	0.00	0.00	
5900	5900	0.00	0.00	0.00	0.00	
6000	6000	0.00	0.00	0.00	0.00	
6100	6100	0.00	0.00	0.00	0.00	
6200	6200	0.00	0.00	0.00	0.00	
6300	6300	0.00	0.00	0.00	0.00	
6400	6400	0.00	0.00	0.00	0.00	
6500	6500	0.00	0.00	0.00	0.00	
6600	6600	0.00	0.00	0.00	0.00	
6700	6700	0.00	0.00	0.00	0.00	
6800	6800	0.00	0.00	0.00	0.00	
6900	6900	0.00	0.00	0.00	0.00	
7000	7000	0.00	0.00	0.00	0.00	
7100	7100	0.00	0.00	0.00	0.00	
7200	7200	0.00	0.00	0.00	0.00	
7300	7300	0.00	0.00	0.00	0.00	
7400	7400	0.00	0.00	0.00	0.00	
7500	7500	0.00	0.00	0.00	0.00	
7600	7600	0.00	0.00	0.00	0.00	
7700	7700	0.00	0.00	0.00	0.00	
7800	7800	0.00	0.00	0.00	0.00	
7900	7900	0.00	0.00	0.00	0.00	
8000	8000	0.00	0.00	0.00	0.00	
8100	8100	0.00	0.00	0.00	0.00	
8200	8200	0.00	0.00	0.00	0.00	
8300	8300	0.00	0.00	0.00	0.00	
8400	8400	0.00	0.00	0.00	0.00	
8500	8500	0.00	0.00	0.00	0.00	
8600	8600	0.00	0.00	0.00	0.00	
8700	8700	0.00	0.00	0.00	0.00	
8800	8800	0.00	0.00	0.00	0.00	
8900	8900	0.00	0.00	0.00	0.00	
9000	9000	0.00	0.00	0.00	0.00	
9100	9100	0.00	0.00	0.00	0.00	
9200	9200	0.00	0.00	0.00	0.00	
9300	9300	0.00	0.00	0.00	0.00	
9400	9400	0.00	0.00	0.00	0.00	
9500	9500	0.00	0.00	0.00	0.00	
9600	9600	0.00	0.00	0.00	0.00	
9700	9700	0.00	0.00	0.00	0.00	
9800	9800	0.00	0.00	0.00	0.00	
9900	9900	0.00	0.00	0.00	0.00	
10000	10000	0.00	0.00	0.00	0.00	



H Ex 31 48 2

New Tube No. 16 8" converted Rifle

Additional specimens



H Ex 3/ 49 2

No. 2612.

Marks, $\frac{8}{B} \frac{T_{16}}{T_{10} I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000233	.000100	0.	.....	
3,750	15,000	.000337	.000134	0.	.....	
5,000	20,000	.000533	.000166	0.	.....	
6,250	25,000	.000700	.000167	0.	.....	
7,500	30,000	.000900	.000200	0.	.....	
8,750	35,000	.001100	.000200	.....	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001267	.000100	.....	.....	
9,750	39,000	.001300	.000033	.....	.....	
10,000	40,000	.001333	.000033	.....	.....	
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.001400	.000033	.....	.....	
10,750	43,000	.001433	.000033	.....	.....	
11,000	44,000	.001500	.000067	.....	.....	
11,250	45,000	.001600	.000100			Elastic limit.
11,500	46,000	.002667	.001067	.....	.....	
11,750	47,000	.004033	.001366	.....	.....	
12,000	48,000	.007167	.003134	.....	.....	
12,250	49,000	.008333	.001166	.....	.....	
12,500	50,000	.009667	.001334	.....	.....	
13,000	52,000	.012500	.002833	.....	.....	
13,500	54,000	.015033	.002533	.....	.....	
14,000	56,000	.018333	.003300	.....	.....	
14,500	58,000	.021500	.003167	.....	.....	
15,000	60,000	.024667	.003167	.....	.....	
15,500	62,000	.028267	.003600	.....	.....	
16,000	64,000	.032167	.003900	.....	.....	
16,500	66,000	.037167	.005000	.....	.....	
17,000	68,000	.0400	.002833	.....	.....	
17,500	70,000	.0500	.0100	.....	.....	
18,000	72,000	.0633	.0133	.....	.....	
18,500	74,000	.0700	.0067	.....	.....	
19,000	76,000	.0933	.0233			Tensile strength.
19,300	77,200	.1433	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	77,200
Elastic limit per square inch of original section.....	do...	45,000
Elongation per inch after rupture.....	inch..	0.2567
Elongation per inch under strain at elastic limit.....	do...	.001600
Reduction in diameter at point of rupture.....	do...	.194
Reduction in area after rupture, per centum of original section.....		57.0
Position of rupture.....	.....	1 inch from neck
Character of broken surface.....	.....	silky; opened cracks in surface of stem
Elongation of inch sections.....	.....	".43", ".20", ".14

No. 2613.

Marks, $\frac{8}{B} T_{16}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	.....	.....	
2,500	10,000	.000300	.000167	.....	.....	
3,750	15,000	.000500	.000200	.....	.....	
5,000	20,000	.000667	.000167	.....	.....	
6,250	25,000	.000800	.000133	.....	.....	
7,500	30,000	.001013	.000233	.....	.....	
8,750	35,000	.001233	.000200	.....	.....	
9,000	36,000	.001267	.000034	.....	.....	
9,250	37,000	.001333	.000066	.....	.....	
9,500	38,000	.001400	.000067	.....	.....	Elastic limit.
9,750	39,000	.001733	.000333	.....	.....	
10,000	40,000	.007233	.005500	.....	.....	
10,250	41,000	.007733	.000500	.....	.....	
10,500	42,000	.008667	.000934	.....	.....	
10,750	43,000	.009900	.001233	.....	.....	
11,000	44,000	.010867	.000967	.....	.....	
11,500	46,000	.013167	.002300	.....	.....	
12,000	48,000	.016000	.002833	.....	.....	
12,500	50,000	.018500	.002500	.....	.....	
13,000	52,000	.021167	.002667	.....	.....	
13,500	54,000	.024167	.003000	.....	.....	
14,000	56,000	.027600	.003433	.....	.....	
14,500	58,000	.031067	.003467	.....	.....	
15,000	60,000	.0367	.005633	.....	.....	
15,500	62,000	.0400	.0033	.....	.....	
16,000	64,000	.0500	.0100	.....	.....	
16,500	66,000	.0600	.0100	.....	.....	
17,000	68,000	.0700	.0100	.....	.....	
17,500	70,000	.0800	.0100	.....	.....	
18,000	72,000	.1000	.0200	.....	.....	
18,500	74,000	.1467	.0467	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	74,003
Elastic limit per square inch of original section	do...	38,000
Elongation per inch after rupture	inch..	0.2530
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do..	.164
Reduction in area after rupture, per centum of original section		49.7
Position of rupture	1".30 from neck	
Character of broken surface	silky	
Elongation of inch sections	".25, ".35*, ".16	

No. 2614.

Marks, $\frac{8}{B} T_{12}^M$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000733	.000133	0.	.....	
7,500	30,000	.000933	.000200	0.	.....	
8,750	35,000	.001100	.000167	.....	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001200	.000067	.....	.....	
9,500	38,000	.001267	.000067	.....	.....	
9,750	39,000	.001333	.000066	.....	.....	Elastic limit.
10,000	40,000	.001600	.000267	.....	.....	
10,250	41,000	.002500	.000900	.....	.....	
10,500	42,000	.005333	.002833	.....	.....	
10,750	43,000	.006667	.001334	.....	.....	
11,000	44,000	.008000	.001333	.....	.....	
11,250	45,000	.009167	.001167	.....	.....	
11,500	46,000	.010100	.000933	.....	.....	
12,000	48,000	.012167	.002067	.....	.....	
12,500	50,000	.014900	.002733	.....	.....	
13,000	52,000	.017667	.002767	.....	.....	
13,500	54,000	.020333	.002666	.....	.....	
14,000	56,000	.023167	.002834	.....	.....	
14,500	58,000	.026833	.003666	.....	.....	
15,000	60,000	.030667	.003834	.....	.....	
15,500	62,000	.034000	.003333	.....	.....	
16,000	64,000	.0400	.0060	.....	.....	
16,500	66,000	.0433	.0033	.....	.....	
17,000	68,000	.0533	.0100	.....	.....	
17,500	70,000	.0633	.0100	.....	.....	
18,000	72,000	.0700	.0067	.....	.....	
18,500	74,000	.0933	.0233	.....	.....	
19,000	76,000	.1567	.0634	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	76,000
Elastic limit per square inch of original section.....	do ..	39,000
Elongation per inch after rupture	inch..	0.2600
Elongation per inch under strain at elastic limit	do...	.001333
Reduction in diameter at point of rupture.....	do...	.174
Reduction in area after rupture, per centum of original section		52.2
Position of rupture	1".05 from neck	
Character of broken surface.....	silky	
Elongation of inch sections	".45*, ".21, ".12	

No. 907.

Mark, 2 1/2

Diameter, 1.594.

Sectional area .25 square inch.

Tested at

Tube No. 18 - 8" diameter Rifle

Pressure

Time

Temp.

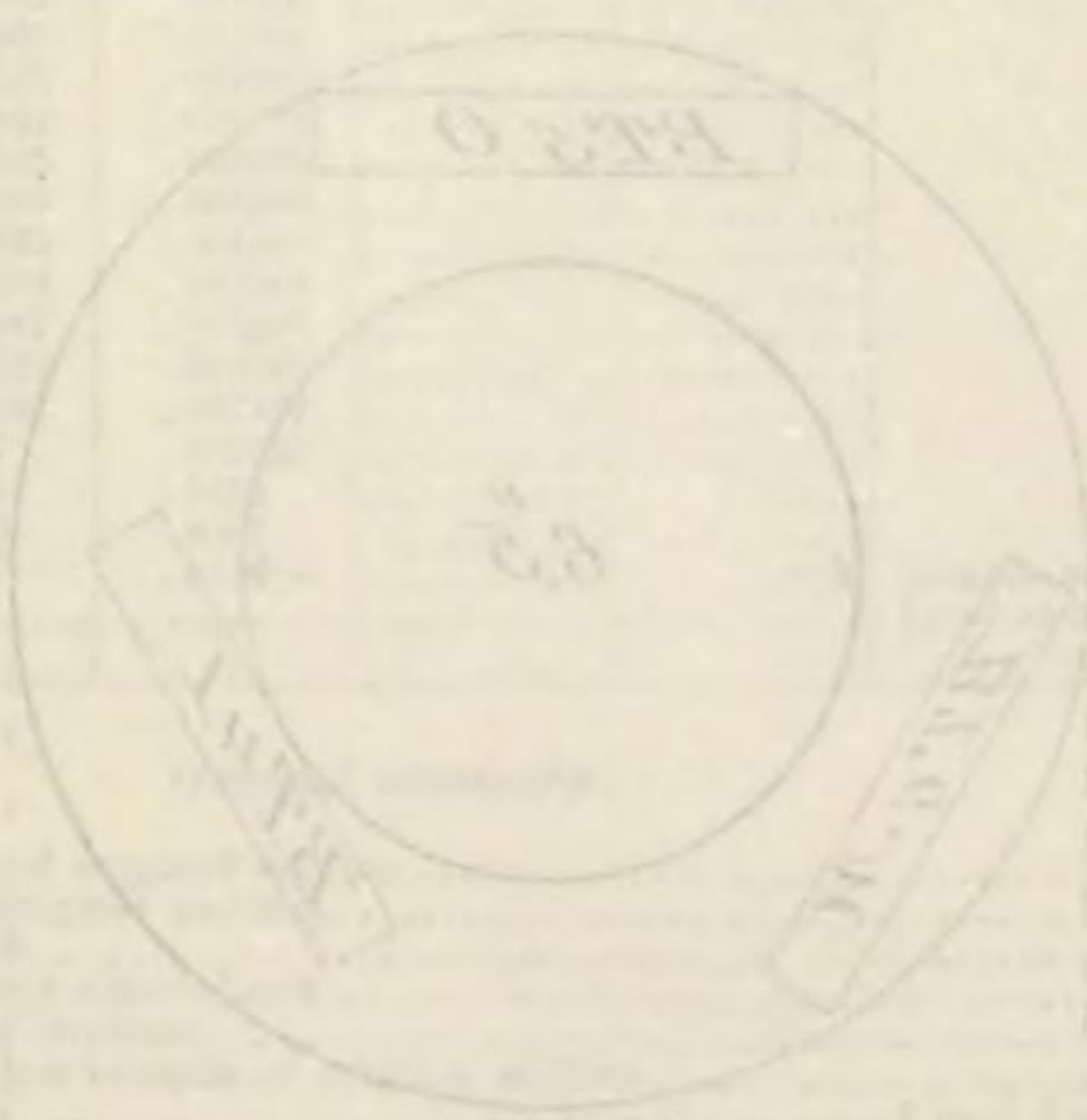
Weight

Length

Notes

Remarks

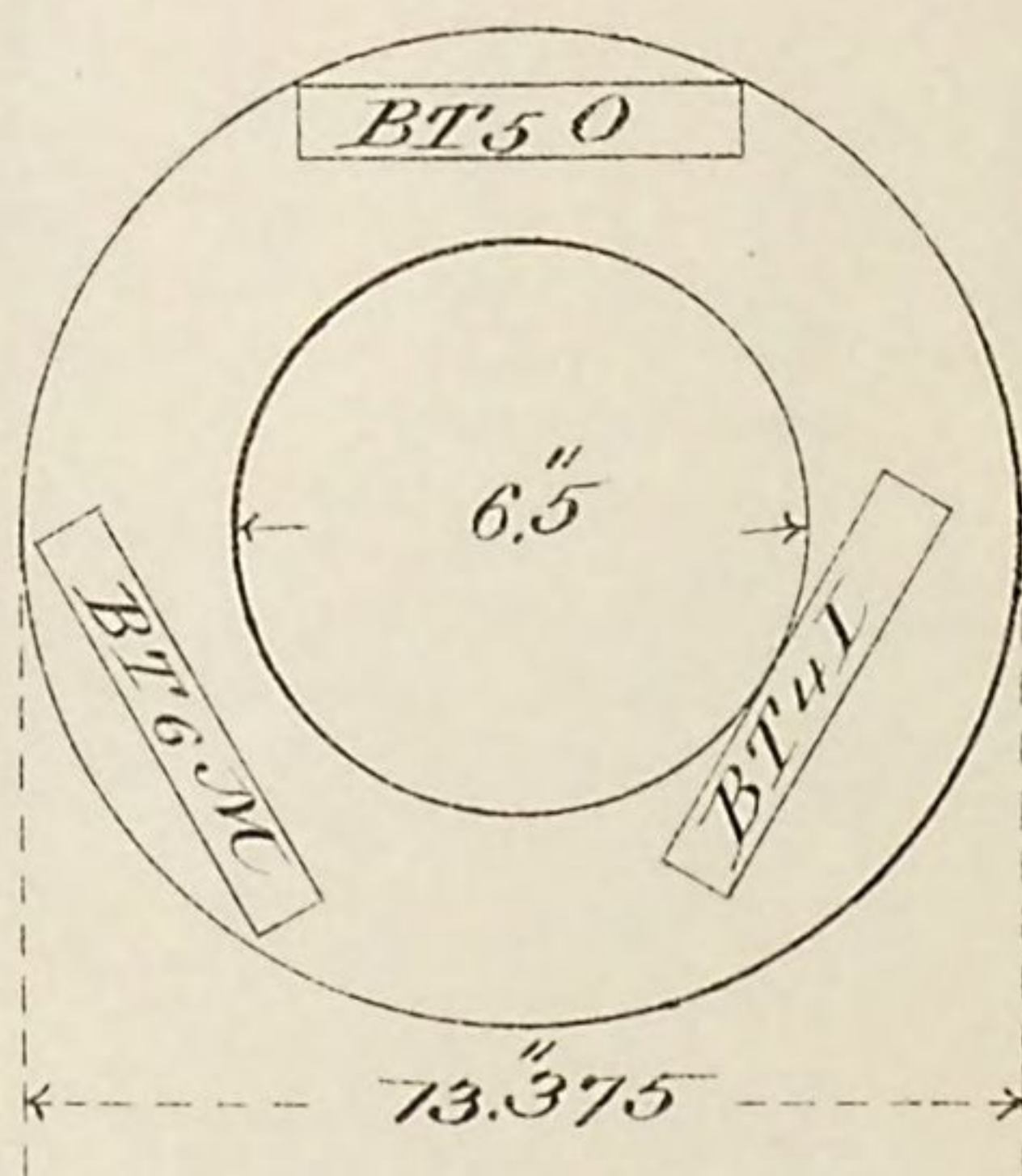
Additional specimens



H E X 3 \ 49 2

Tube No. 78 8" converted Rifle

Additional specimens



H Ex 3 / 49 2

No. 997.

Marks, $\frac{8}{B} \frac{T_{18}}{T_4} I$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000067	.000067	— .000033	— .000033	
2,500	10,000	.000167	.000100	— .000067	— .000034	
3,750	15,000	.000267	.000100	— .000067	0	
5,000	20,000	.000433	.000166	— .000067	0	
6,250	25,000	.000600	.000167	— .000067	0	
7,500	30,000	.000767	.000167	— .000067	0	
7,750	31,000	.000800	.000033			Elastic limit.
8,000	32,000	.000967	.000167	.....	.....	
8,250	33,000	.004067	.003100	.....	.....	
8,500	34,000	.006000	.001933	.....	.....	
8,750	35,000	.007367	.001367	.006067	.006134	
9,000	36,000	.008367	.001000	.....	.....	
9,250	37,000	.009333	.000966	.....	.....	
9,500	38,000	.010600	.001267	.....	.....	
9,750	39,000	.011500	.000900	.....	.....	
10,000	40,000	.012900	.001400	.010933	.001866	
10,250	41,000	.013733	.000833	.....	.....	
10,500	42,000	.014600	.000867	.....	.....	
10,750	43,000	.015700	.001100	.....	.....	
11,000	44,000	.017300	.001600	.....	.....	
11,250	45,000	.018467	.001167	.....	.....	
11,500	46,000	.019767	.001300	.....	.....	
11,750	47,000	.021667	.001900	.....	.....	
12,000	48,000	.022867	.001200	.....	.....	
12,250	49,000	.024133	.001266	.....	.....	
12,500	50,000	.025867	.001734	.....	.....	
13,000	52,000	.029333	.003466	.....	.....	
13,500	54,000	.033833	.004500	.....	.....	
14,000	56,000	.037833	.004000	.....	.....	
14,500	58,000	.043200	.005367	.....	.....	
15,000	60,000	.048667	.005467	.....	.....	
15,500	62,000	.056667	.008000	.....	.....	
16,000	64,000	.064367	.007700	.....	.....	
16,500	66,000	.0767	.012333	.....	.....	
17,000	68,000	.0900	.0133	.....	.....	
17,500	70,000	.1167	.0267	.....	.....	
17,920	71,680	.1867	.0700	.....	.....	
15,900						Tensile strength. Load at time of rupture.

General summary.

Tensile strength per square inch of original section	pounds..	71,680
Elastic limit per square inch of original section	do...	31,000
Elongation per inch after rupture	inch..	0.2800
Elongation per inch under strain at elastic limit	do...	.000800
Reduction in diameter at point of rupture	do...	.144
Reduction in area after rupture, per centum of original section		44.6
Position of rupture	$\frac{3}{8}$ inch from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".25, ".42*, ".19	

No. 998.

Marks, $\frac{8}{5} T_{18}$
 $\frac{B}{T_{18}} O$

Diameter, ".563.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000677	.000167	0.	.....	
6,250	25,000	.000800	.000133	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
7,750	31,000	.001000	.000033	.....	.....	
8,000	32,000	.001033	.000033	.....	.....	
8,250	33,000	.001067	.000034	.....	.....	
8,500	34,000	.001133	.000066			Elastic limit.
8,750	35,000	.001167	.000034	.000033	.000033	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001267	.000067	.....	.....	
9,500	38,000	.008300	.007033	.....	.....	
9,750	39,000	.009300	.001000	.....	.....	
10,000	40,000	.010400	.001100	.008767	.008734	
10,250	41,000	.010833	.000433	.....	.....	
10,500	42,000	.011367	.000534	.....	.....	
10,750	43,000	.012600	.001233	.....	.....	
11,000	44,000	.013767	.001167			
11,250	45,000	.014933	.001166	.....	.....	
11,500	46,000	.016167	.001234	.....	.....	
11,750	47,000	.017400	.001233	.....	.....	
12,000	48,000	.018733	.001333	.....	.....	
12,250	49,000	.020900	.001267	.....	.....	
12,500	50,000	.021100	.001100	.....	.....	
13,000	52,000	.024167	.003067	.....	.....	
13,500	54,000	.027267	.003100	.....	.....	
14,000	56,000	.030767	.003500	.....	.....	
14,500	58,000	.034500	.003733			Tensile strength. Load at time of rupture.
15,000	60,000	.039000	.004500	.....	.....	
15,500	62,000	.044500	.005500	.....	.....	
16,000	64,000	.050000	.005500	.....	.....	
16,500	66,000	.058000	.008000	.....	.....	
17,000	68,000	.067667	.009667			
17,500	70,000	.0800	.012333	.....	.....	
18,000	72,000	.1000	.0200	.....	.....	
18,500	74,000	.1400	.0400	.....	.....	
18,620	74,480	.1933	.0533	.....	.....	
17,200						

General summary.

Tensile strength per square inch of original section	pounds..	74,480
Elastic limit per square inch of original section	do...	37,000
Elongation per inch after rupture	inch..	0.1933
Elongation per inch under strain at elastic limit	do...	.001267
Reduction in diameter at point of rupture	do...	.103
Reduction in area after rupture, per centum of original section		33.5
Position of rupture	at middle of stem	
Character of broken surface	granular; radiating from a dull spot at the circumference	
Elongation of inch sections	".21, ".37*, ".19	

No. 999.

Marks, $B T_6 M$

Diameter, ".564.

Sectional area, .25 square inch.

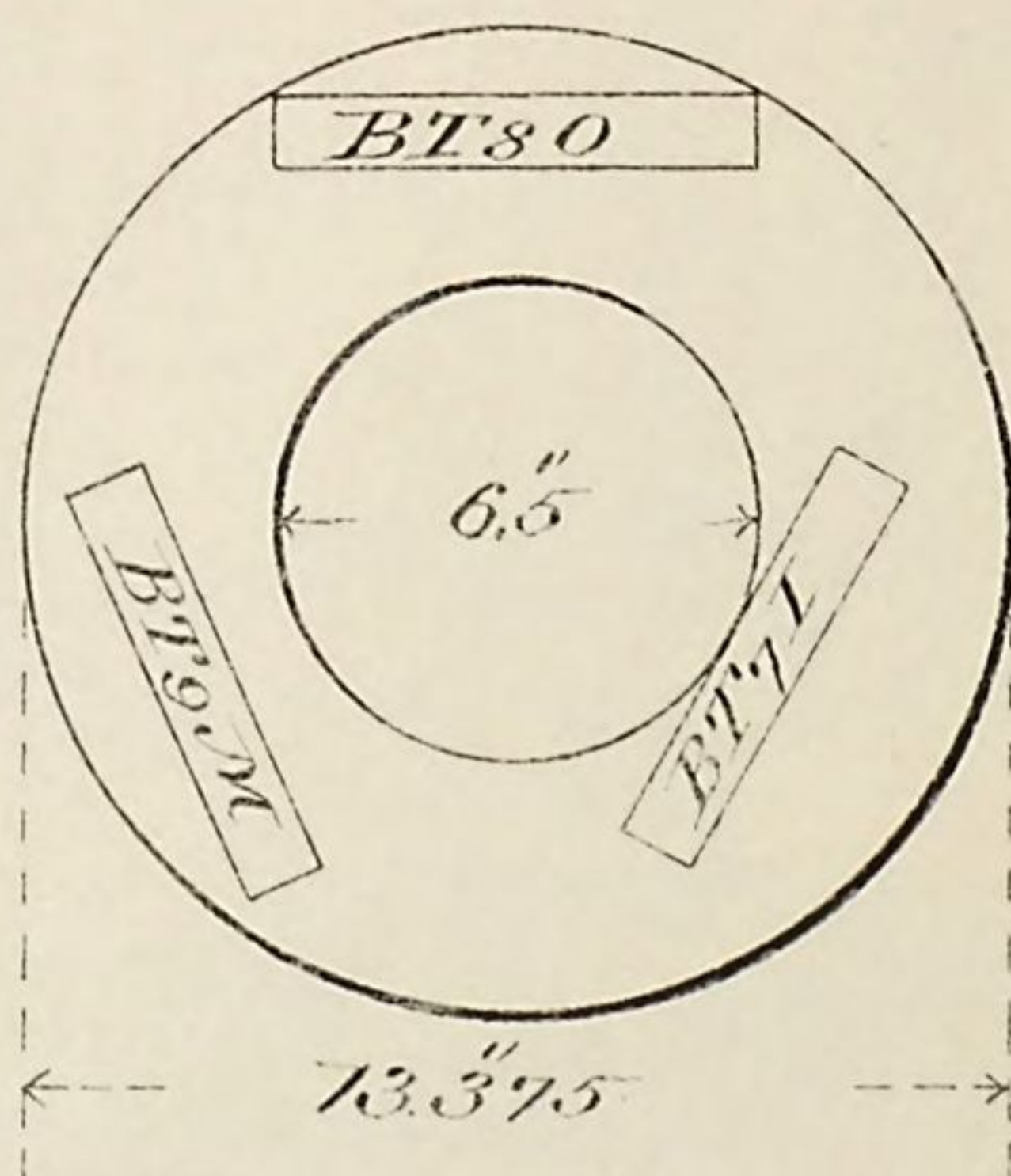
Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
7,750	31,000	.000900	0.	.....	.....	
8,000	32,000	.000933	.000033	.....	.....	
8,250	33,000	.000967	.000034	.....	.....	
8,500	34,000	.001000	.000033			Elastic limit.
8,750	35,000	.006500	.005500	.005333	.005333	
9,000	36,000	.007933	.001433	.....	.....	
9,250	37,000	.008600	.000667	.....	.....	
9,500	38,000	.009767	.001167	.....	.....	
9,750	39,000	.010700	.000933	.....	.....	
10,000	40,000	.011800	.001100	.010333	.005000	
10,250	41,000	.012500	.000700	.....	.....	
10,500	42,000	.013600	.001100	.....	.....	
10,750	43,000	.014667	.001067	.....	.....	
11,000	44,000	.016000	.001333			Tensile strength. Load at time of rupture.
11,250	45,000	.017167	.001167	.....	.....	
11,500	46,000	.018600	.001433	.....	.....	
11,750	47,000	.020000	.001400	.....	.....	
12,000	48,000	.021167	.001167	.....	.....	
12,250	49,000	.022500	.001333	.....	.....	
12,500	50,000	.024400	.001900	.....	.....	
13,000	52,000	.027333	.002933	.....	.....	
13,500	54,000	.031067	.003734	.....	.....	
14,000	56,000	.035133	.004066	.....	.....	
14,500	58,000	.039500	.004367			Tensile strength. Load at time of rupture.
15,000	60,000	.044667	.005167	.....	.....	
15,500	62,000	.050833	.006166	.....	.....	
16,000	64,000	.058333	.007500	.....	.....	
16,500	66,000	.067333	.009000	.....	.....	
17,000	68,000	.0767	.009367	.....	.....	
17,500	70,000	.1000	.0233	.....	.....	
17,980	71,920	.1400	.0400	.....	.....	
16,600	.....	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	71,920
Elastic limit per square inch of original section.....	do...	34,000
Elongation per inch after rupture.....	inch..	0.1467
Elongation per inch under strain at elastic limit.....	do...	.001000
Reduction in diameter at point of rupture.....	do...	.064
Reduction in area after rupture, per centum of original section.....		21.4
Position of rupture.....		$\frac{1}{4}$ inch from neck
Character of broken surface.....	granular; radiating from a blow-hole at the circumference	
Elongation of inch sections.....		".20*, ".13, ".11

Tube No. 78 8" converted Rifle

Additional specimens



H Ex 31 49 2

No. 2125.

Marks, $\frac{8}{B} \frac{T_{18}}{T_7 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
7,750	31,000	.001000	.000033	.....	.....	Elastic limit.
8,000	32,000	.004200	.003200	.....	.....	
8,250	33,000	.005900	.001700	.....	.....	
8,500	34,000	.006900	.001000	.....	.....	
8,750	35,000	.007633	.000733	.....	.....	
9,000	36,000	.008667	.001034	.....	.....	
9,250	37,000	.009500	.000833	.....	.....	
9,500	38,000	.010667	.001167	.....	.....	
9,750	39,000	.011667	.001000	.....	.....	
10,000	40,000	.012733	.001066	.....	.....	
10,250	41,000	.013733	.001000	.....	.....	
10,500	42,000	.015100	.001367	.....	.....	
10,750	43,000	.016167	.001067	.....	.....	
11,000	44,000	.017333	.001166	.....	.....	
11,250	45,000	.018567	.001234	.....	.....	
11,500	46,000	.020000	.001433	.....	.....	
11,750	47,000	.021367	.001367	.....	.....	
12,000	48,000	.022767	.001400	.....	.....	
12,250	49,000	.024333	.001566	.....	.....	
12,500	50,000	.026333	.002000	.....	.....	
13,000	52,000	.030000	.003667	.....	.....	
13,500	54,000	.033733	.003733	.....	.....	
14,000	56,000	.038067	.004334	.....	.....	
14,500	58,000	.043167	.005100	.....	.....	
15,000	60,000	.049667	.006500	.....	.....	
15,500	62,000	.057333	.007666	.....	.....	
16,000	64,000	.066500	.009167	.....	.....	
16,500	66,000	.078333	.011833	.....	.....	
17,000	68,000	.0967	.018367	.....	.....	
17,500	70,000	.1300	.0333	.....	.....	
17,710	70,840	.1967	.0667	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	70,840
Elastic limit per square inch of original section.....	do...	31,000
Elongation per inch after rupture.....	inch..	0.2767
Elongation per inch under strain at elastic limit.....	do...	.001000
Reduction in diameter at point of rupture.....	do..	.134
Reduction in area after rupture, per centum of original section.....		41.9
Position of rupture.....	".55 from middle of stem	
Character of broken surface.....	silky; with slight granulation	
Elongation of inch sections.....	".31, ".35*, ".17	

No. 2126.

Marks, $\frac{8}{B} \frac{T_{18}}{T_8} O$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	— .000033	— .000033	
2,500	10,000	.000200	.000100	— .000033	0.	
3,750	15,000	.000433	.000233	— .000033	0.	
5,000	20,000	.000567	.000134	— .000033	0.	
6,250	25,000	.000767	.000200	— .000033	0.	
7,500	30,000	.000900	.000133	— .000033	0.	
7,750	31,000	.000933	.000033	.....	.....	
8,000	32,000	.000967	.000034	.....	.....	
8,250	33,000	.001033	.000066	.....	.....	
8,500	34,000	.001100	.000067	.....	.....	
8,750	35,000	.001167	.000067	.000067	.000100	Elastic limit.
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.008833	.007633	.....	.....	
9,500	38,000	.009800	.000967	.....	.....	
9,750	39,000	.010500	.000700	.....	.....	
10,000	40,000	.011567	.001067	.....	.....	
10,250	41,000	.012333	.000766	.....	.....	
10,500	42,000	.013500	.001167	.....	.....	
10,750	43,000	.014400	.000900	.....	.....	
11,000	44,000	.015700	.001300	.....	.....	
11,250	45,000	.016900	.001200	.....	.....	
11,500	46,000	.018333	.001433	.....	.....	
11,750	47,000	.019333	.001000	.....	.....	
12,000	48,000	.021033	.001700	.....	.....	
12,250	49,000	.022100	.001067			Tensile strength.
12,500	50,000	.023733	.001633	.....	.....	
13,000	52,000	.027500	.003767	.....	.....	
13,500	54,000	.030833	.003333	.....	.....	
14,000	56,000	.034567	.003734	.....	.....	
14,500	58,000	.039167	.004600	.....	.....	
15,000	60,000	.044000	.004833	.....	.....	
15,500	62,000	.050000	.006000	.....	.....	
16,000	64,000	.058333	.008333	.....	.....	
16,500	66,000	.0650	.006667	.....	.....	
17,000	68,000	.0783	.0133	.....	.....	
17,500	70,000	.0967	.0184	.....	.....	
18,000	72,000	.1233	.0266	.....	.....	
18,260	73,040	.1900	.0667	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	73,040
Elastic limit per square inch of original section.....	do ..	35,000
Elongation per inch after rupture.....	inch..	0.3100
Elongation per inch under strain at elastic limit.....	do...	.001167
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	$\frac{3}{8}$ inch from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".24, ".46*, ".23	

No. 2127.

Marks, $\frac{8}{B} \frac{T_{18}}{T_9} M$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.001000	.000200	0.	.....	
7,750	31,000	.001033	.000033	.....	.....	
8,000	32,000	.001100	.000067	.....	.....	
8,250	33,000	.002433	.001333			Elastic limit.
8,500	34,000	.007067	.004634	.....	.....	
8,750	35,000	.008067	.001000	.....	.....	
9,000	36,000	.009100	.001033	.....	.....	
9,250	37,000	.010000	.000900	.....	.....	
9,500	38,000	.011000	.001000	.....	.....	
9,750	39,000	.011900	.000900	.....	.....	
10,000	40,000	.013000	.001100	.....	.....	
10,250	41,000	.014033	.001033	.....	.....	
10,500	42,000	.015167	.001134	.....	.....	
10,750	43,000	.016167	.001000	.....	.....	
11,000	44,000	.017667	.001500	.....	.....	
11,250	45,000	.018767	.001100	.....	.....	
11,500	46,000	.020100	.001333	.....	.....	
11,750	47,000	.021500	.001400	.....	.....	
12,000	48,000	.023167	.001667	.....	.....	
12,250	49,000	.024667	.001500	.....	.....	
12,500	50,000	.026533	.001866	.....	.....	
13,000	52,000	.029700	.003167	.....	.....	
13,500	54,000	.033733	.004033	.....	.....	
14,000	56,000	.037667	.003934	.....	.....	
14,500	58,000	.043000	.005333	.....	.....	
15,000	60,000	.049000	.006000	.....	.....	
15,500	62,000	.055333	.006333	.....	.....	
16,000	64,000	.064667	.009334	.....	.....	
16,500	66,000	.075000	.010333	.....	.....	
17,000	68,000	.0900	.0150	.....	.....	
17,500	70,000	.1200	.0300	.....	.....	
17,700	70,800					Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	70,800
Elastic limit per square inch of original section	do...	32,000
Elongation per inch after rupture	inch..	0.1433
Elongation per inch under strain at elastic limit	do...	.001100
Reduction in diameter at point of rupture	do...	.064
Reduction in area after rupture, per centum of original section		21.4
Position of rupture	".40 from neck	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	".18", ".13", ".12	

H. Ex. 31—43

NEW TUBE No. 18.

No. 2420.

Marks, $\frac{8 T_{18}}{B T_7 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001067	.000100	.....	.....	
9,000	36,000	.001100	.000033	.....	.....	
9,250	37,000	.001133	.000033			Elastic limit.
9,500	38,000	.001167	.000034	.....	.....	
9,750	39,000	.001500	.000333	.....	.....	
10,000	40,000	.002667	.001167	.....	.....	
10,250	41,000	.004067	.001400	.....	.....	
10,500	42,000	.008333	.004266	.....	.....	
10,750	43,000	.010333	.002000	.....	.....	
11,000	44,000	.012000	.001667	.....	.....	
11,250	45,000	.012467	.000467	.....	.....	
11,500	46,000	.013067	.000600	.....	.....	
11,750	47,000	.014367	.001300	.....	.....	
12,000	48,000	.016100	.001733	.....	.....	
12,250	49,000	.017500	.001400	.....	.....	
12,500	50,000	.019133	.001633	.....	.....	
13,000	52,000	.021933	.002800	.....	.....	
13,500	54,000	.025833	.003900			Tensile strength.
14,000	56,000	.029333	.003500	.....	.....	
14,500	58,000	.033567	.004234	.....	.....	
15,000	60,000	.038667	.005100	.....	.....	
15,500	62,000	.046333	.007666	.....	.....	
16,000	64,000	.053333	.007000	.....	.....	
16,500	66,000	.0633	.009967	.....	.....	
17,000	68,000	.0733	.0100	.....	.....	
17,500	70,000	.0900	.0167	.....	.....	
18,000	72,000	.1233	.0333	.....	.....	
18,140	72,560	.1667	.0434	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	72,560
Elastic limit per square inch of original section	do...	38,000
Elongation per inch after rupture	inch..	0.2567
Elongation per inch under strain at elastic limit	do...	.001167
Reduction in diameter at point of rupture	do...	.144
Reduction in area after rupture, per centum of original section		44.6
Position of rupture	1".20 from neck; oblique	
Character of broken surface	silky; opened cracks in surface of stem	
Elongation of inch sections	".15, ".25, ".37*	

No. 2421.

Marks, $\frac{8}{B} \frac{T_{18}}{T_8 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000800	.000133	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	.....	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	Elastic limit.
9,500	38,000	.001333	.000133	.....	.....	
9,750	39,000	.008000	.006667	.....	.....	
10,000	40,000	.009567	.001567	.....	.....	
10,250	41,000	.009933	.000366	.....	.....	
10,500	42,000	.010700	.000767	.....	.....	
10,750	43,000	.011667	.000967	.....	.....	
11,000	44,000	.012867	.001200	.....	.....	
11,250	45,000	.013833	.000966	.....	.....	
11,500	46,000	.015000	.001167	.....	.....	
11,750	47,000	.016433	.001433	.....	.....	
12,000	48,000	.018000	.001567	.....	.....	
12,250	49,000	.019000	.001000	.....	.....	
12,500	50,000	.020567	.001567	.....	.....	
13,000	52,000	.024000	.003433	.....	.....	
13,500	54,000	.027333	.003333	.....	.....	
14,000	56,000	.030900	.003567	.....	.....	
14,500	58,000	.035667	.004767	.....	.....	
15,000	60,000	.040667	.005000	.....	.....	
15,500	62,000	.046000	.005333	.....	.....	
16,000	64,000	.052700	.006700	.....	.....	
16,500	66,000	.061567	.008867	.....	.....	
17,000	68,000	.0767	.015133	.....	.....	
17,500	70,000	.0967	.0200	.....	.....	
18,000	72,000	.1167	.0200	.....	.....	
18,280	73,120	.1700	.0533	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	73,120
Elastic limit per square inch of original section	do...	37,000
Elongation per inch after rupture	inch..	0.2433
Elongation per inch under strain at elastic limit	do...	.001200
Reduction in diameter at point of rupture	do...	.164
Reduction in area after rupture, per centum of original section		49.7
Position of rupture	".65 from neck	
Character of broken surface	silky; opened cracks in surface of stem	
Elongation of inch sections	".14, ".18, ".41*	

No. 2422.

Marks, $\frac{8}{B} \frac{T_{18}}{T_9} M$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001067	.000100	.....	.....	
9,000	36,000	.001100	.000033	.....	.....	
9,250	37,000	.001133	.000033	.....	.....	
9,500	38,000	.001167	.000034	.....	.....	
9,750	39,000	.001267	.000100	.....	.....	
10,000	40,000	.001367	.000100	.....	.....	Elastic limit.
10,250	41,000	.005000	.003633	.....	.....	
10,500	42,000	.007600	.002600	.....	.....	
10,750	43,000	.008367	.000767	.....	.....	
11,000	44,000	.009700	.001333	.....	.....	
11,250	45,000	.010733	.001033	.....	.....	
11,500	46,000	.011867	.001134	.....	.....	
11,750	47,000	.013000	.001133	.....	.....	
12,000	48,000	.014333	.001333	.....	.....	
12,250	49,000	.015667	.001334	.....	.....	
12,500	50,000	.016800	.001133	.....	.....	
13,000	52,000	.019833	.003033	.....	.....	
13,500	54,000	.022667	.002834	.....	.....	
14,000	56,000	.026000	.003233	.....	.....	
14,500	58,000	.030000	.004000	.....	.....	
15,000	60,000	.034000	.004000	.....	.....	
15,500	62,000	.039000	.005000	.....	.....	
16,000	64,000	.045500	.006500	.....	.....	
16,500	66,000	.051000	.005500	.....	.....	
17,000	68,000	.059667	.008667	.....	.....	
17,500	70,000	.0700	.010333	.....	.....	
18,000	72,000	.0900	.0200	.....	.....	
18,500	74,000	.1167	.0267	.....	.....	
18,750	75,000	.1700	.0533	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	75,000
Elastic limit per square inch of original section	do...	40,000
Elongation per inch after rupture	inch..	0.2400
Elongation per inch under strain at elastic limit	do...	.001367
Reduction in diameter at point of rupture	do...	.135
Reduction in area after rupture, per centum of original section		41.9
Position of rupture		1".10 from neck
Character of broken surface	silky; opened cracks in surface of stem	
Elongation of inch sections		".33*, ".26, ".13

No. 2423.

Marks, $\frac{8}{M} \frac{T_{12}}{T_4 I}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000533	.000200	0.	.....	
5,000	20,000	.000700	.000167	0.	.....	
6,250	25,000	.000833	.000133	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001133	.000133	.....	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033			Elastic limit.
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001400	.000167	.....	.....	
10,000	40,000	.003333	.001933	.....	.....	
10,250	41,000	.005133	.001800	.....	.....	
10,500	42,000	.007500	.001367	.....	.....	
10,750	43,000	.009067	.001567	.....	.....	
11,000	44,000	.010400	.001533	.....	.....	
11,250	45,000	.011433	.001033	.....	.....	
11,500	46,000	.012433	.001000	.....	.....	
11,750	47,000	.013733	.001300	.....	.....	
12,000	48,000	.015000	.001267	.....	.....	
12,250	49,000	.016233	.001233	.....	.....	
12,500	50,000	.017700	.001467	.....	.....	
13,000	52,000	.020500	.002800	.....	.....	
13,500	54,000	.023333	.002833			Tensile strength.
14,000	56,000	.027500	.004167	.....	.....	
14,500	58,000	.032000	.004500	.....	.....	
15,000	60,000	.036000	.004000	.....	.....	
15,500	62,000	.041167	.005167	.....	.....	
16,000	64,000	.046000	.004833	.....	.....	
16,500	66,000	.053333	.007333	.....	.....	
17,500	68,000	.062667	.009334			
17,500	70,000	.0767	.014033	.....	.....	
18,000	72,000	.0933	.0166	.....	.....	
18,460	73,840	.1467	.0534	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	73,840
Elastic limit per square inch of original section	do...	38,000
Elongation per inch after rupture	inch..	0.1600
Elongation per inch under strain at elastic limit	do...	.001233
Reduction in diameter at point of rupture	do...	.065
Reduction in area after rupture, per centum of original section		21.4
Position of rupture	1 inch from neck	
Character of broken surface, granular; flaky spot at circumference; opened small cracks in surface of stem.		
Elongation of inch sections	".10, ".13, ".25*	

No. 2424.

Marks, $\frac{8}{M} T_{18} O$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	.....	.....	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033			Elastic limit.
9,500	38,000	.001267	.000034	.....	.....	
9,750	39,000	.001300	.000033	.....	.....	
10,000	40,000	.001333	.000033	.....	.....	
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.004500	.003133	.....	.....	
10,750	43,000	.008267	.003767	.....	.....	
11,000	44,000	.009000	.000733	.....	.....	
11,250	45,000	.010000	.001000	.....	.....	
11,500	46,000	.011067	.001067			Tensile strength.
11,750	47,000	.012133	.001066	.....	.....	
12,000	48,000	.013333	.001200	.....	.....	
12,250	49,000	.014333	.001000	.....	.....	
12,500	50,000	.015667	.001334	.....	.....	
13,000	52,000	.018667	.003000	.....	.....	
13,500	54,000	.021067	.002400	.....	.....	
14,000	56,000	.024000	.002933	.....	.....	
14,500	58,000	.027667	.003667	.....	.....	
15,000	60,000	.031367	.003700	.....	.....	
15,500	62,000	.035167	.003800			Tensile strength.
16,000	64,000	.039667	.004500	.....	.....	
16,500	66,000	.045000	.005333	.....	.....	
17,000	68,000	.052500	.007500	.....	.....	
17,500	70,000	.060000	.007500	.....	.....	
18,000	72,000	.0700	.0100	.....	.....	
18,500	74,000	.0900	.0200	.....	.....	
19,000	76,000	.1167	.0267	.....	.....	
19,090	76,360	.1400	.0233	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	76,360
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch..	0.1767
Elongation per inch under strain at elastic limit	do...	.001367
Reduction in diameter at point of rupture	do...	.064
Reduction in area after rupture, per centum of original section		21.4
Position of rupture	".33 from neck	
Character of broken surface. granular; dull spot at circumference; opened cracks in surface of stem		
Diameter $\frac{1}{2}$ inch from point of rupture	".49	

No. 2425.

Marks, $\frac{8 T_{18}}{M T_6 M}$

Diameter, ".565.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000367	.000134	0.	.....	
5,000	20,000	.000500	.000133	0.	.....	
6,250	25,000	.000633	.000133	0.	.....	
7,500	30,000	.000833	.000200	0.	.....	
8,750	35,000	.001100	.000267	.....	.....	
9,000	36,000	.001133	.000033	.....	.....	Elastic limit.
9,250	37,000	.007900	.006767	.....	.....	
9,500	38,000	.008933	.001033	.....	.....	
9,750	39,000	.009667	.000734	.....	.....	
10,000	40,000	.010667	.001000	.....	.....	
10,500	42,000	.013033	.002366	.....	.....	
11,000	44,000	.014000	.000967	.....	.....	
11,500	46,000	.017667	.003667	.....	.....	
12,000	48,000	.021033	.003366	.....	.....	
12,500	50,000	.023300	.002267	.....	.....	
13,000	52,000	.026500	.003200	.....	.....	
13,500	54,000	.030000	.003500	.....	.....	
14,000	56,000	.034000	.004000	.....	.....	
14,500	58,000	.038667	.004667	.....	.....	
15,000	60,000	.043333	.004666	.....	.....	
15,500	62,000	.049333	.006000	.....	.....	
16,000	64,000	.055667	.006334	.....	.....	
16,500	66,000	.0667	.011033	.....	.....	
17,000	68,000	.0733	.0066	.....	.....	
17,500	70,000	.0967	.0234	.....	.....	
18,000	72,000	.1267	.0300	.....	.....	
18,150	72,600	.1667	.0400	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	72,600
Elastic limit per square inch of original section	do...	36,000
Elongation per inch after rupture	inch..	0.1967
Elongation per inch under strain at elastic limit	do...	.001133
Reduction in diameter at point of rupture	do...	.084
Reduction in area after rupture, per centum of original section		27.6
Position of rupture	1".55 from neck	
Character of broken surface	granular, 40 per centum; silky, oblique, 60 per centum	
Elongation of inch sections	".12, ".29*, ".18	

Mark, 8000

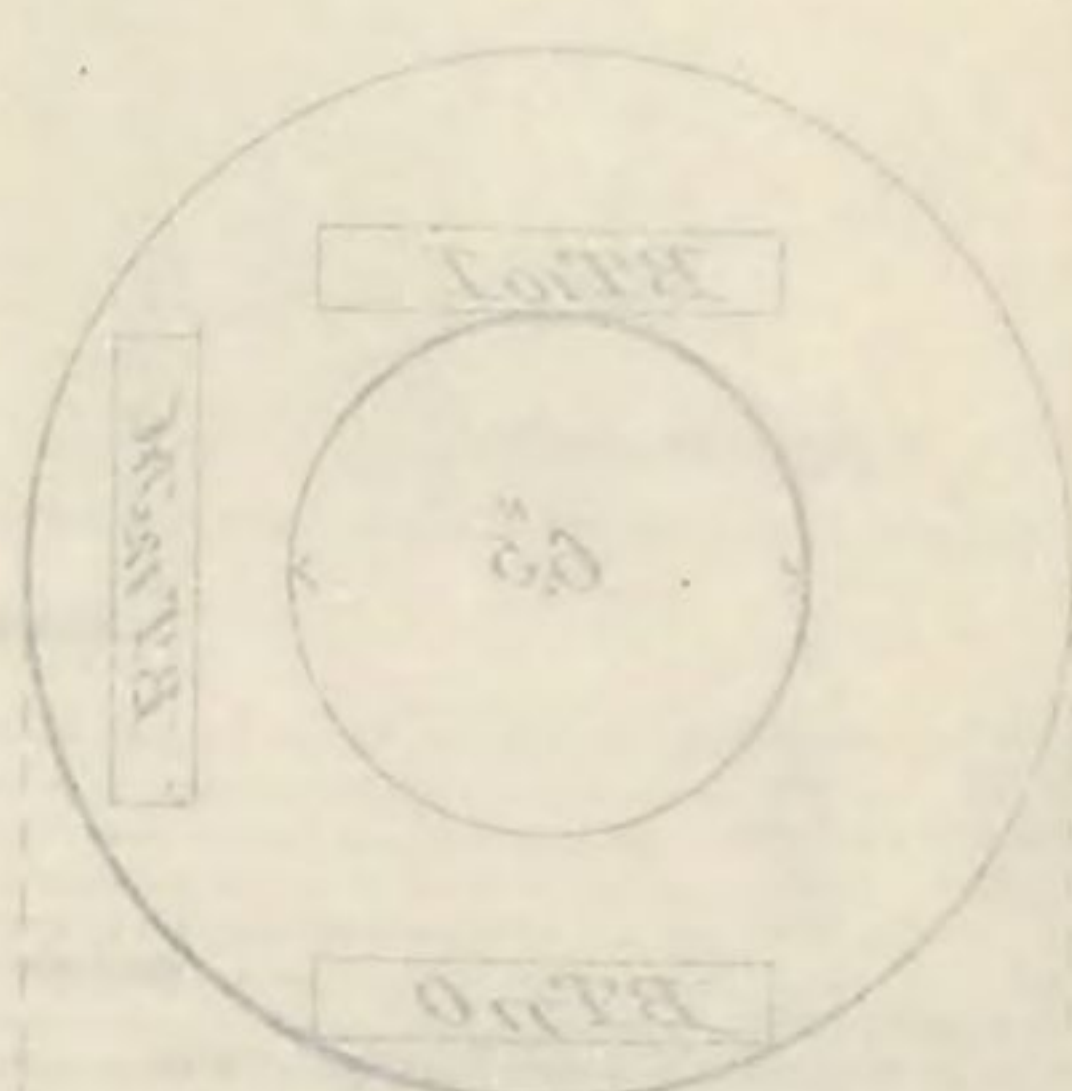
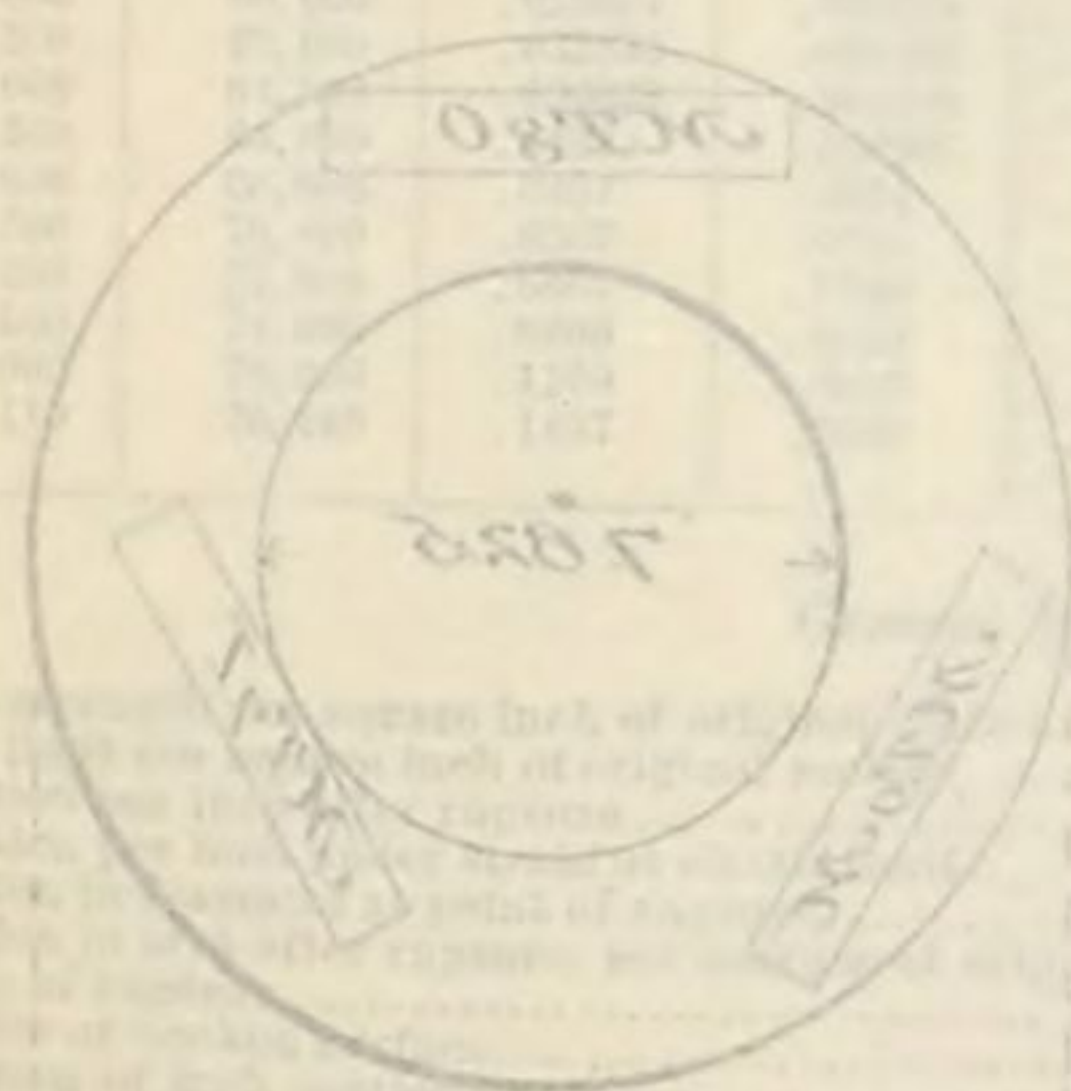
Diameter, 1.504

Sectional area, .25 square inch.

New Type No. 18 8" converted Rifle

Applied loads	Distance from muzzle	Distance from muzzle	Distance from muzzle
100	100	100	100
200	200	200	200
300	300	300	300
400	400	400	400
500	500	500	500
600	600	600	600
700	700	700	700
800	800	800	800
900	900	900	900
1000	1000	1000	1000
1100	1100	1100	1100
1200	1200	1200	1200
1300	1300	1300	1300
1400	1400	1400	1400
1500	1500	1500	1500
1600	1600	1600	1600
1700	1700	1700	1700
1800	1800	1800	1800
1900	1900	1900	1900
2000	2000	2000	2000
2100	2100	2100	2100
2200	2200	2200	2200
2300	2300	2300	2300
2400	2400	2400	2400
2500	2500	2500	2500
2600	2600	2600	2600
2700	2700	2700	2700
2800	2800	2800	2800
2900	2900	2900	2900
3000	3000	3000	3000

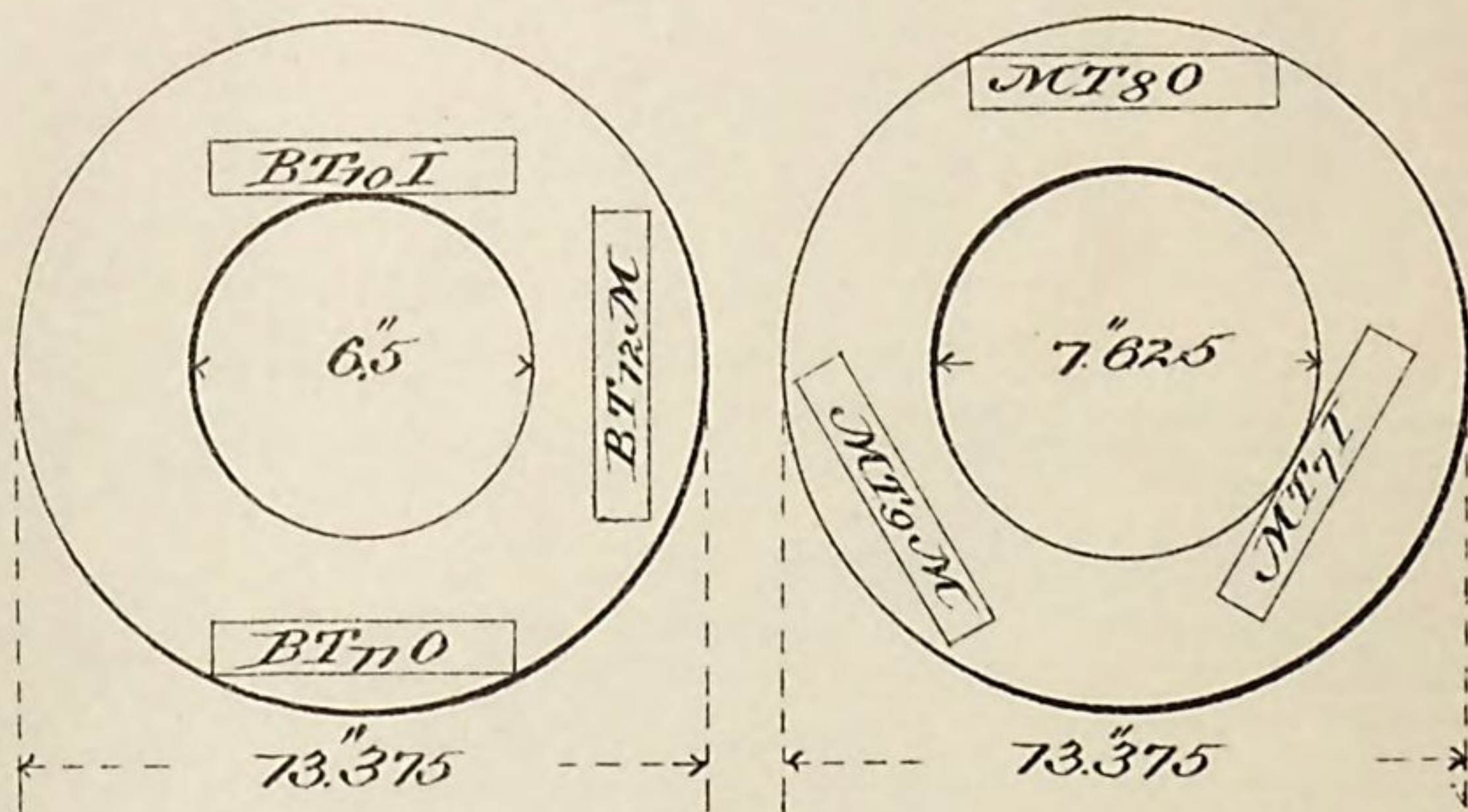
Additional specimens



H Ex 3 \ 40 2

New Tube No. 18 8" converted Rifle

Additional specimens



H Ex 3/ 49 2

No. 2630.

Marks, $\begin{smallmatrix} 8 & C_n & R_{18} & T \\ & B & T_{10} & I \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	.....	.....	
2,500	10,000	.000233	.000133	.....	.....	
3,750	15,000	.000400	.000167	.....	.....	
5,000	20,000	.000567	.000167	.....	.....	
6,250	25,000	.000733	.000166	.....	.....	
7,500	30,000	.000933	.000200	.....	.....	
8,750	35,000	.001100	.000167	.....	.....	
10,000	40,000	.001333	.000233	.....	.....	
10,250	41,000	.001367	.000034	.....	.....	Elastic limit.
10,500	42,000	.002867	.001500	.....	.....	
10,750	43,000	.004200	.001333	.....	.....	
11,000	44,000	.006200	.002000	.....	.....	
11,250	45,000	.007400	.001200	.....	.....	
11,500	46,000	.009000	.001600	.....	.....	
12,000	48,000	.011100	.002100	.....	.....	
12,500	50,000	.013333	.002233	.....	.....	
13,000	52,000	.016033	.002700	.....	.....	
13,500	54,000	.018667	.002634	.....	.....	
14,000	56,000	.021833	.003166	.....	.....	
14,500	58,000	.024833	.003000	.....	.....	
15,000	60,000	.028067	.003234	.....	.....	
15,500	62,000	.032333	.004266	.....	.....	
16,000	64,000	.036333	.004000	.....	.....	
16,500	66,000	.0433	.006967	.....	.....	
17,000	68,000	.0467	.0034	.....	.....	
17,500	70,000	.0567	.0100	.....	.....	
18,000	72,000	.0667	.0100	.....	.....	
18,500	74,000	.0800	.0133	.....	.....	
19,000	76,000	.1100	.0300	.....	.....	
19,110	76,440	.1467	.0367	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	76,440
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.2033
Elongation per inch under strain at elastic limit.....	do...	.001367
Reduction in diameter at point of rupture.....	do...	.114
Reduction in area after rupture, per centum of original section.....		36.4
Position of rupture.....	1".35 from neck	
Character of broken surface.....	silky; opened cracks in surface of stem	
Elongation of inch sections ..	".23, ".28*, ".10	

No. 2631.

Marks, ^{8 Cn R₁₈ T}
_{B T₁₁ O}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001067	.000134	.....	.....	
10,000	40,000	.001300	.000233	.....	.....	
10,250	41,000	.001333	.000033			Elastic limit.
10,500	42,000	.001400	.000067	.....	.....	
10,750	43,000	.001433	.000033	.....	.....	
11,000	44,000	.001500	.000067	.....	.....	
11,250	45,000	.002067	.000567	.....	.....	
11,500	46,000	.004067	.002000	.....	.....	
11,750	47,000	.005000	.000933	.....	.....	
12,000	48,000	.006167	.001167	.....	.....	
12,500	50,000	.008100	.001933	.....	.....	
13,000	52,000	.010200	.002100	.....	.....	
13,500	54,000	.012333	.002133	.....	.....	
14,000	56,000	.014467	.002134	.....	.....	
14,500	58,000	.016900	.002433	.....	.....	
15,000	60,000	.019067	.002767	.....	.....	
15,500	62,000	.022333	.002666	.....	.....	
16,000	64,000	.025667	.003334			Tensile strength.
16,500	66,000	.028333	.002666	.....	.....	
17,000	68,000	.031667	.003334	.....	.....	
17,500	70,000	.036000	.004333	.....	.....	
18,000	72,000	.0433	.0073	.....	.....	
18,500	74,000	.0467	.0034	.....	.....	
19,000	76,000	.0567	.0100	.....	.....	
19,500	78,000	.0667	.0100	.....	.....	
20,000	80,000	.0733	.0066	.....	.....	
20,500	82,000	.0967	.0234	.....	.....	
20,710	82,840	.1333	.0366	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	82,840
Elastic limit per square inch of original section	do...	44,000
Elongation per inch after rupture	inch..	0.2067
Elongation per inch under strain at elastic limit	do...	.001500
Reduction in diameter at point of rupture	do...	.144
Reduction in area after rupture, per centum of original section		44.6
Position of rupture	at middle of stem.	
Character of broken surface	silky; opened cracks in surface of stem	
Elongation of inch sections	".12, ".37*, ".13	

No. 2632.

Marks, $\begin{smallmatrix} 8 & C_n & R_{18} & T \\ & B & T_{12} & M \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000367	.000134	0.	.....	
5,000	20,000	.000533	.000166	0.	.....	
6,250	25,000	.000700	.000167	0.	.....	
7,500	30,000	.000867	.000167	0.	.....	
8,750	35,000	.001100	.000233	.....	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001200	.000067	.....	.....	
9,500	38,000	.001267	.000067	.....	.....	
9,750	39,000	.001267	0.	.....	.....	
10,000	40,000	.001300	.000033	.....	.....	
10,250	41,000	.001333	.000033	.....	.....	
10,500	42,000	.001367	.000034			Elastic limit.
10,750	43,000	.001733	.000366	.....	.....	
11,000	44,000	.005767	.004034	.....	.....	
11,250	45,000	.006333	.000566	.....	.....	
11,500	46,000	.007533	.001200	.....	.....	
12,000	48,000	.009333	.001800	.....	.....	
12,500	50,000	.011500	.002167	.....	.....	
13,000	52,000	.014667	.003167	.....	.....	
13,500	54,000	.016667	.002000	.....	.....	
14,000	56,000	.019367	.002700	.....	.....	
14,500	58,000	.022267	.002900	.....	.....	
15,000	60,000	.025067	.002800	.....	.....	
15,500	62,000	.029000	.003933	.....	.....	
16,000	64,000	.034667	.005667	.....	.....	
16,500	66,000	.0400	.005333	.....	.....	
17,000	68,000	.0433	.0033	.....	.....	
17,500	70,000	.0500	.0067	.....	.....	
18,000	72,000	.0567	.0067	.....	.....	
18,500	74,000	.0667	.0100	.....	.....	
19,000	76,000	.0800	.0133	.....	.....	
19,500	78,000	.1033	.0233	.....	.....	
19,700	78,800	.1433	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	78,800
Elastic limit per square inch of original section.....	do...	42,000
Elongation per inch after rupture	inch..	0.2033
Elongation per inch under strain at elastic limit	do...	.001367
Reduction in diameter at point of rupture.....	do...	.134
Reduction in area after rupture, per centum of original section.....		41.9
Position of rupture	1".60 from neck	
Character of broken surface	silky ; opened cracks in surface of stem	
Elongation of inch sections.....	".15, ".35*, ".11	

No. 2633.

Marks, $\frac{8}{M} \frac{C_n}{T_7} \frac{R_{18}}{I} T$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	.....	.....	
10,000	40,000	.001300	.000200	.....	.....	
10,250	41,000	.001333	.000033			Elastic limit.
10,500	42,000	.001400	.000067	.....	.....	
10,750	43,000	.001433	.000033	.....	.....	
11,000	44,000	.001500	.000067	.....	.....	
11,250	45,000	.002000	.000500	.....	.....	
11,500	46,000	.002800	.000800	.....	.....	
11,750	47,000	.003533	.000733	.....	.....	
12,000	48,000	.004700	.001167	.....	.....	
12,250	49,000	.005567	.000867	.....	.....	
12,500	50,000	.007067	.001500	.....	.....	
13,000	52,000	.009933	.002866	.....	.....	
13,500	54,000	.012267	.002334	.....	.....	
14,000	56,000	.014267	.002000	.....	.....	
14,500	58,000	.016000	.001733	.....	.....	
15,000	60,000	.019900	.003900	.....	.....	
15,500	62,000	.022500	.002600			Tensile strength.
16,000	64,000	.025333	.002833	.....	.....	
16,500	66,000	.028733	.003400	.....	.....	
17,000	68,000	.032000	.003267	.....	.....	
17,500	70,000	.036500	.004500	.....	.....	
18,000	72,000	.041667	.005167	.....	.....	
18,500	74,000	.0533	.011633	.....	.....	
19,000	76,000	.0600	.0067			
19,500	78,000	.0733	.0133	.....	.....	
20,000	80,000	.0933	.0200	.....	.....	
20,200	80,800	.1133	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	80,800
Elastic limit per square inch of original section	do ..	44,000
Elongation per inch after rupture	inch ..	0.1367
Elongation per inch under strain at elastic limit	do ..	.001500
Reduction in diameter at point of rupture	do ..	.094
Reduction in area after rupture, per centum of original section		30.6
Position of rupture	$\frac{5}{8}$ inch from neck	
Character of broken surface	granular; flaky spot at circumference	
Elongation of inch sections	".07, ".12, ".22*	

No. 2634.

Marks, $\begin{smallmatrix} 8CnR_{18}T \\ MT_8O \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000267	.000134	0.	-----	
3,750	15,000	.000467	.000200	0.	-----	
5,000	20,000	.000667	.000200	0.	-----	
6,250	25,000	.000833	.000166	0.	-----	
7,500	30,000	.001000	.000167	0.	-----	
8,750	35,000	.001200	.000200	-----	-----	
10,000	40,000	.001333	.000133	-----	-----	
10,250	41,000	.001400	.000167	-----	-----	Elastic limit.
10,500	42,000	.001500	.000100	-----	-----	
10,750	43,000	.001600	.000100	-----	-----	
11,000	44,000	.001833	.000233	-----	-----	
11,250	45,000	.002267	.000434	-----	-----	
11,500	46,000	.003933	.001666	-----	-----	
11,750	47,000	.004467	.000534	-----	-----	
12,000	48,000	.005667	.001200	-----	-----	
12,250	49,000	.006700	.001033	-----	-----	
12,500	50,000	.008000	.001300	-----	-----	
13,000	52,000	.010167	.002167	-----	-----	
13,500	54,000	.012700	.002533	-----	-----	
14,000	56,000	.014567	.001867	-----	-----	
14,500	58,000	.017233	.002666	-----	-----	
15,000	60,000	.019533	.002300	-----	-----	
15,500	62,000	.022067	.002534	-----	-----	
16,000	64,000	.024867	.002800	-----	-----	
16,500	66,000	.028200	.003333	-----	-----	
17,000	68,000	.032167	.003967	-----	-----	Tensile strength.
17,500	70,000	.036000	.003833	-----	-----	
18,000	72,000	.040400	.004400	-----	-----	
18,500	74,000	.0433	.0029	-----	-----	
19,000	76,000	.0533	.0100	-----	-----	
19,500	78,000	.0633	.0100	-----	-----	
20,000	80,000	.0733	.0100	-----	-----	
20,500	82,000	.0967	.0234	-----	-----	
20,700	82,800	.1400	.0433	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	82,800
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.1700
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.094
Reduction in area after rupture, per centum of original section.....		30.6
Position of rupture.....		1 inch from neck
Character of broken surface.....		granular, 70 per centum; dull silky, 30 per centum
Elongation of inch sections.....		".10".18, ".23"

No. 2635.

Marks, $\frac{8}{M} \frac{C_n}{T_9} \frac{R_{18}}{M} \frac{T}{M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000300	.000200	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000767	.000134	0.	.....	
7,500	30,000	.000967	.000200	0.	.....	
8,750	35,000	.001133	.000166	.....	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001267	.000067			Elastic limit.
9,750	39,000	.001333	.000066	.....	.....	
10,000	40,000	.002333	.001000	.....	.....	
10,250	41,000	.003200	.000867	.....	.....	
10,500	42,000	.004667	.001467	.....	.....	
10,750	43,000	.005867	.001200	.....	.....	
11,000	44,000	.007067	.001200	.....	.....	
11,250	45,000	.008067	.001000	.....	.....	
11,500	46,000	.009333	.001266	.....	.....	
12,000	48,000	.011733	.002400	.....	.....	
12,500	50,000	.013900	.002167			Tensile strength.
13,000	52,000	.016567	.002667	.....	.....	
13,500	54,000	.019333	.002766	.....	.....	
14,000	56,000	.022333	.003000	.....	.....	
14,500	58,000	.025333	.003000	.....	.....	
15,000	60,000	.028667	.003334	.....	.....	
15,500	62,000	.032500	.003833	.....	.....	
16,000	64,000	.036667	.004167	.....	.....	
16,500	66,000	.042000	.005333	.....	.....	
17,000	68,000	.0500	.0080	.....	.....	
17,500	70,000	.0567	.0067	.....	.....	
18,000	72,000	.0667	.0100	.....	.....	
18,500	74,000	.0800	.0133	.....	.....	
19,000	76,000	.1267	.0467	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	76,000
Elastic limit per square inch of original section.....	do...	39,000
Elongation per inch after rupture.....	inch..	0.1933
Elongation per inch under strain at elastic limit.....	do...	.001333
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....	1".25 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".07, ".19, ".32*	

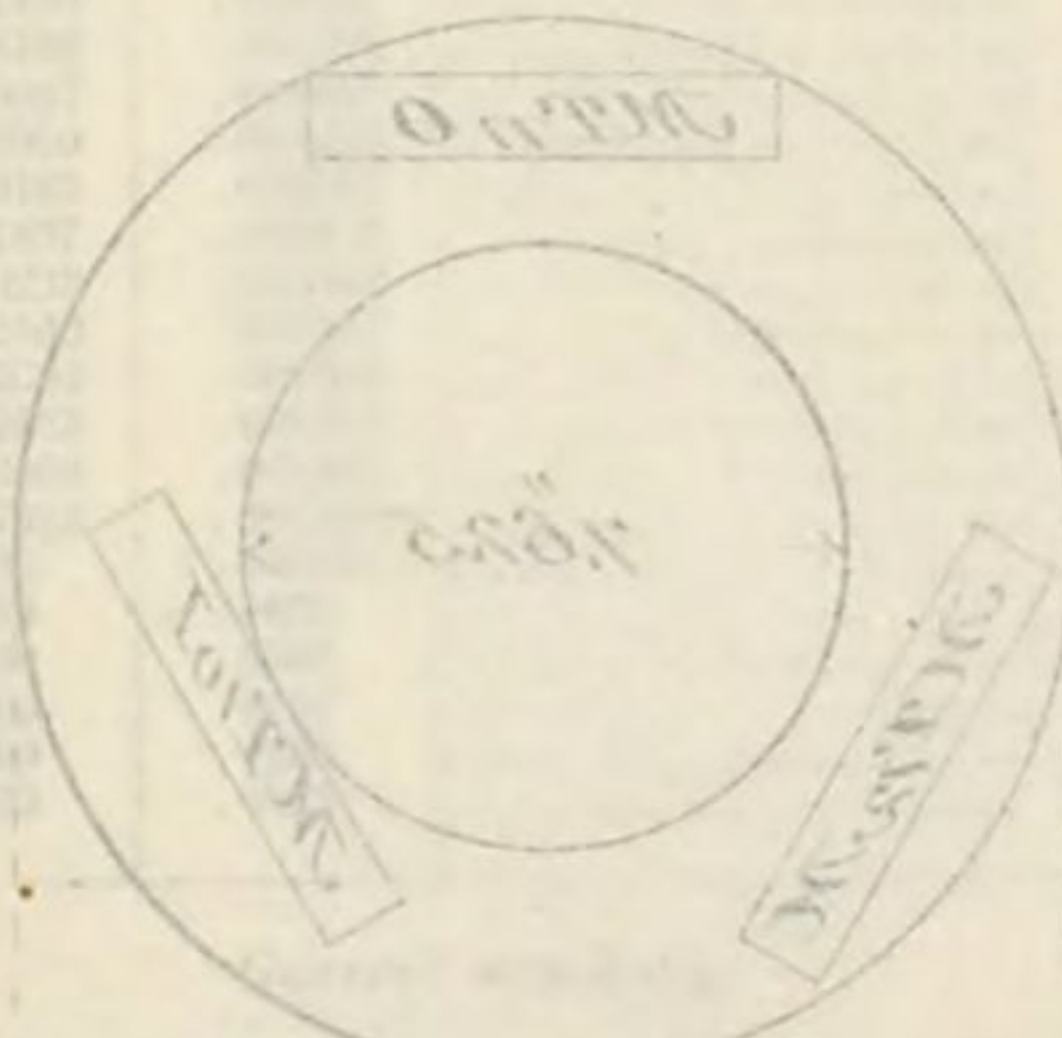
No. 2689.

Marks, $\frac{1}{2}$ and $\frac{3}{4}$

Diameter, 1.564.

Sectional area, .36 square inch.

Applied loads	Extension per inch	Force, and extension per inch	Force, and extension per inch	Force, and extension per inch	Force, and extension per inch
1000	0.0001	1000	0.0001	1000	0.0001
2000	0.0002	2000	0.0002	2000	0.0002
3000	0.0003	3000	0.0003	3000	0.0003
4000	0.0004	4000	0.0004	4000	0.0004
5000	0.0005	5000	0.0005	5000	0.0005
6000	0.0006	6000	0.0006	6000	0.0006
7000	0.0007	7000	0.0007	7000	0.0007
8000	0.0008	8000	0.0008	8000	0.0008
9000	0.0009	9000	0.0009	9000	0.0009
10000	0.0010	10000	0.0010	10000	0.0010
11000	0.0011	11000	0.0011	11000	0.0011
12000	0.0012	12000	0.0012	12000	0.0012
13000	0.0013	13000	0.0013	13000	0.0013
14000	0.0014	14000	0.0014	14000	0.0014
15000	0.0015	15000	0.0015	15000	0.0015
16000	0.0016	16000	0.0016	16000	0.0016
17000	0.0017	17000	0.0017	17000	0.0017
18000	0.0018	18000	0.0018	18000	0.0018
19000	0.0019	19000	0.0019	19000	0.0019
20000	0.0020	20000	0.0020	20000	0.0020
21000	0.0021	21000	0.0021	21000	0.0021
22000	0.0022	22000	0.0022	22000	0.0022
23000	0.0023	23000	0.0023	23000	0.0023
24000	0.0024	24000	0.0024	24000	0.0024
25000	0.0025	25000	0.0025	25000	0.0025
26000	0.0026	26000	0.0026	26000	0.0026
27000	0.0027	27000	0.0027	27000	0.0027
28000	0.0028	28000	0.0028	28000	0.0028
29000	0.0029	29000	0.0029	29000	0.0029
30000	0.0030	30000	0.0030	30000	0.0030
31000	0.0031	31000	0.0031	31000	0.0031
32000	0.0032	32000	0.0032	32000	0.0032
33000	0.0033	33000	0.0033	33000	0.0033
34000	0.0034	34000	0.0034	34000	0.0034
35000	0.0035	35000	0.0035	35000	0.0035
36000	0.0036	36000	0.0036	36000	0.0036
37000	0.0037	37000	0.0037	37000	0.0037
38000	0.0038	38000	0.0038	38000	0.0038
39000	0.0039	39000	0.0039	39000	0.0039
40000	0.0040	40000	0.0040	40000	0.0040
41000	0.0041	41000	0.0041	41000	0.0041
42000	0.0042	42000	0.0042	42000	0.0042
43000	0.0043	43000	0.0043	43000	0.0043
44000	0.0044	44000	0.0044	44000	0.0044
45000	0.0045	45000	0.0045	45000	0.0045
46000	0.0046	46000	0.0046	46000	0.0046
47000	0.0047	47000	0.0047	47000	0.0047
48000	0.0048	48000	0.0048	48000	0.0048
49000	0.0049	49000	0.0049	49000	0.0049
50000	0.0050	50000	0.0050	50000	0.0050

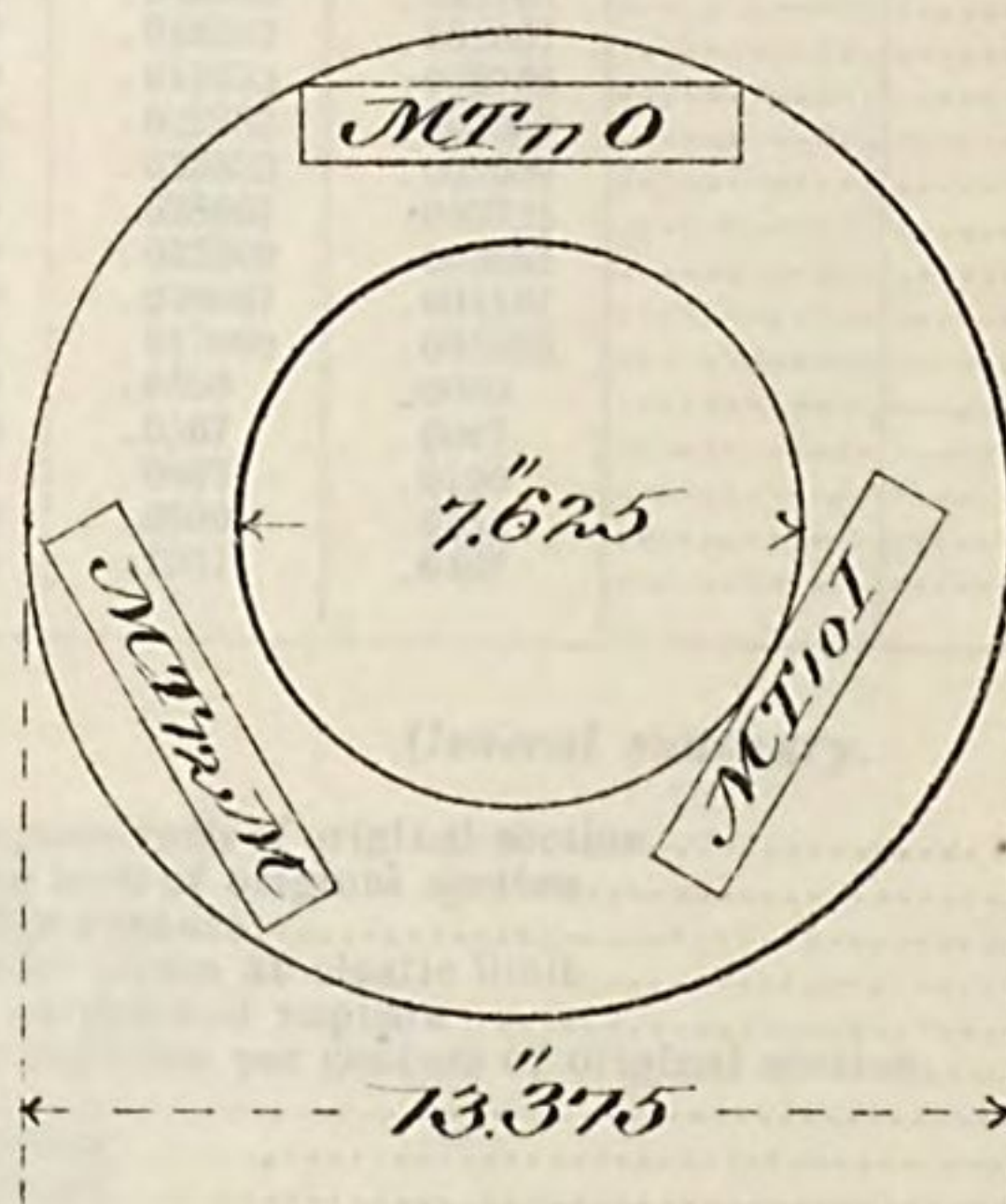


H Ex 31 40 5

Weight, 25 lbs.
 Length, 30 ft.
 Internal area, 25 square inch.

New Tube No. 18 8" converted Rifle

Additional specimens



H Ex 3 / 49 2

No. 2689.

Marks, ^{8 Cn R18 T}
^{M T10 I}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000700	.000200	0.	.....	
6,250	25,000	.000867	.000167	0.	.....	
7,500	30,000	.001033	.000166	0.	.....	
8,750	35,000	.001267	.000234	.....	.....	
9,000	36,000	.001300	.000033	.....	.....	
9,250	37,000	.001333	.000033	.....	.....	
9,500	38,000	.001367	.000034	.....	.....	
9,750	39,000	.001400	.000033	.....	.....	
10,000	40,000	.001433	.000033	.....	.....	
10,250	41,000	.001467	.000034	.....	.....	
10,500	42,000	.001533	.000066			Elastic limit.
10,750	43,000	.001600	.000067	.....	.....	
11,000	44,000	.001900	.000300	.....	.....	
11,250	45,000	.002332	.000433	.....	.....	
11,500	46,000	.002667	.000334	.....	.....	
11,750	47,000	.004500	.001833	.....	.....	
12,000	48,000	.006333	.001833	.....	.....	
12,250	49,000	.007400	.001067	.....	.....	
12,500	50,000	.008700	.001300	.....	.....	
13,000	52,000	.010667	.001967	.....	.....	
13,500	54,000	.013000	.002333	.....	.....	
14,000	56,000	.015167	.002167	.....	.....	
14,500	58,000	.017867	.002700	.....	.....	
15,000	60,000	.020233	.002366	.....	.....	
15,500	62,000	.022500	.002267	.....	.....	
16,000	64,000	.026000	.003500	.....	.....	
16,500	66,000	.029833	.003833	.....	.....	
17,000	68,000	.033000	.003167	.....	.....	
17,500	70,000	.037333	.004333	.....	.....	
18,000	72,000	.0400	.002667	.....	.....	
18,500	74,000	.0433	.0033	.....	.....	
19,000	76,000	.0500	.0067	.....	.....	
19,500	78,000	.0700	.0200	.....	.....	
20,000	80,000	.0900	.0200	.....	.....	
20,480	81,920	.1333	.0433			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	81,920
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	0.1400
Elongation per inch under strain at elastic limit.....	do...	.001600
Reduction in diameter at point of rupture.....	do...	.074
Reduction in area after rupture, per centum of original section.....		24.6
Position of rupture.....		".35 from neck
Character of broken surface.....	granular, with flaky spot	
Elongation of inch sections.....		".11, ".11, ".20 *

No. 2690.

Marks, $\begin{smallmatrix} 8\text{ Cn R}_{18}\text{ T} \\ \text{M T}_{11}\text{ O} \end{smallmatrix}$

Diameter, ".564.

Sectional area, 25 .square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001200	.000233	.....	.....	
9,000	36,000	.001233	.000033	.....	.....	
9,250	37,000	.001233	0.	.....	.....	
9,500	38,000	.001267	.000034			Elastic limit.
9,750	39,000	.001300	.000033	.....	.....	
10,000	40,000	.001333	.000033	.....	.....	
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.001400	.000033	.....	.....	
10,750	43,000	.001500	.000100	.....	.....	
11,000	44,000	.001600	.000100	.....	.....	
11,250	45,000	.002933	.001333	.....	.....	
11,500	46,000	.004833	.001900	.....	.....	
11,750	47,000	.005600	.000767	.....	.....	
12,000	48,000	.006767	.001167			Tensile strength.
12,250	49,000	.007667	.000900	.....	.....	
12,500	50,000	.008833	.001166	.....	.....	
13,000	52,000	.010833	.002000	.....	.....	
13,500	54,000	.013167	.002334	.....	.....	
14,000	56,000	.015333	.002166	.....	.....	
14,500	58,000	.018000	.002667	.....	.....	
15,000	60,000	.020400	.002400	.....	.....	
15,500	62,000	.023233	.002833	.....	.....	
16,000	64,000	.026000	.002767	.....	.....	
16,500	66,000	.029533	.003533	.....	.....	
17,000	68,000	.033167	.003634	.....	.....	
17,500	70,000	.037333	.004166	.....	.....	
18,000	72,000	.041933	.004600	.....	.....	
18,500	74,000	.0500	.008067	.....	.....	
19,000	76,000	.0567	.0067	.....	.....	
19,500	78,000	.0700	.0133	.....	.....	
20,000	80,000	.0833	.0133	.....	.....	
20,500	82,000	.1200	.0367	.....	.....	
20,560	82,240	.1433	.0233	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	82,240
Elastic limit per square inch of original section.....	do...	44,000
Elongation per inch after rupture.....	inch..	0.2067
Elongation per inch under strain at elastic limit.....	do...	.001600
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....	".05 from middle of stem	
Character of broken surface.....	silky; opened cracks in surface of stem	
Elongation of inch sections.....	".13, ".35*, ".14	

No. 2691.

Marks, $\begin{smallmatrix} S & C_n & R_{18} & T \\ M & T_{12} & M \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000667	.000200	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	.....	.....	
9,000	36,000	.001233	.000066	.....	.....	
9,250	37,000	.001267	.000034	.....	.....	
9,500	38,000	.001300	.000033	.....	.....	
9,750	39,000	.001333	.000033	.....	.....	
10,000	40,000	.001400	.000067	.....	.....	Elastic limit.
10,250	41,000	.001600	.000200	.....	.....	
10,500	42,000	.002600	.001000	.....	.....	
10,750	43,000	.003667	.001067	.....	.....	
11,000	44,000	.005233	.001566	.....	.....	
11,250	45,000	.006533	.001300	.....	.....	
11,500	46,000	.007667	.001134	.....	.....	
11,750	47,000	.008667	.001000	.....	.....	
12,000	48,000	.009567	.000900	.....	.....	
12,250	49,000	.010767	.001200	.....	.....	
12,500	50,000	.011800	.001033	.....	.....	
13,000	52,000	.013900	.002100	.....	.....	
13,500	54,000	.016533	.002633	.....	.....	
14,000	56,000	.019000	.002467	.....	.....	
14,500	58,000	.021767	.002767	.....	.....	
15,000	60,000	.025000	.003233	.....	.....	
15,500	62,000	.028167	.003167	.....	.....	
16,000	64,000	.031800	.003633	.....	.....	
16,500	66,000	.036167	.004367	.....	.....	
17,000	68,000	.040667	.004500	.....	.....	
17,500	70,000	.0500	.009333	.....	.....	
18,000	72,000	.0567	.0067	.....	.....	
18,500	74,000	.0667	.0100	.....	.....	
19,000	76,000	.0800	.0133	.....	.....	
19,460	77,840	.1233	.0433	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	77,840
Elastic limit per square inch of original section	do...	40,000
Elongation per inch after rupture	inch..	0.1867
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.164
Reduction in area after rupture, per centum of original section		49.7
Position of rupture	".70 from neck	
Character of broken surface	silky	
Elongation of inch sections	".07, ".10, ".39*	

H. Ex. 31 — 44

Date		Place		Subject		Remarks	
1917	Jan 1	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 2	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 3	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 4	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 5	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 6	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 7	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 8	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 9	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 10	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 11	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 12	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 13	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 14	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 15	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 16	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 17	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 18	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 19	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 20	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 21	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 22	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 23	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 24	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 25	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 26	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 27	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 28	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 29	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 30	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917
1917	Jan 31	Chicago	Ill.	Meeting of the Association	Annual Meeting	At the Hotel Sherman	1917

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No. 7110.

WATER

OF THE

Location	Depth	Direction	Force	Remarks
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1	10	10	10	10
2	10	10	10	10
3	10	10	10	10
4	10	10	10	10
5	10	10	10	10
6	10	10	10	10
7	10	10	10	10
8	10	10	10	10
9	10	10	10	10
10	10	10	10	10

Table No. 10 8' corrected

Additional specimens

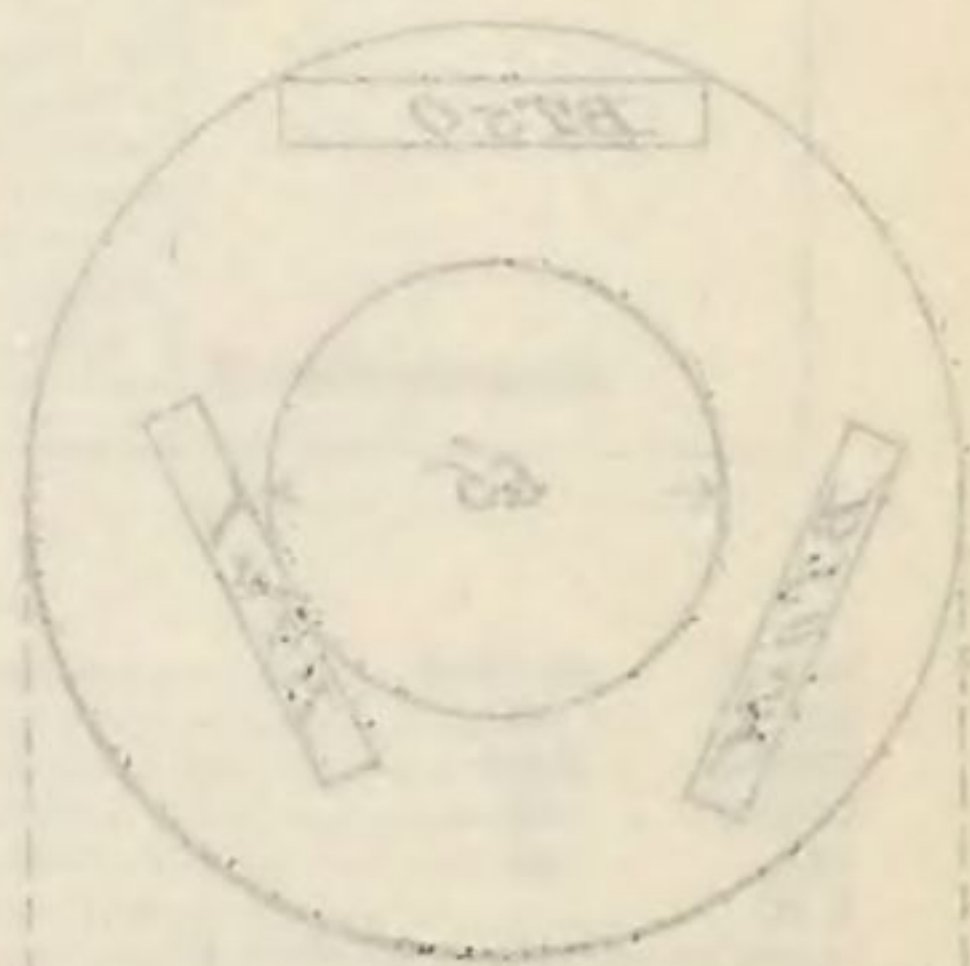
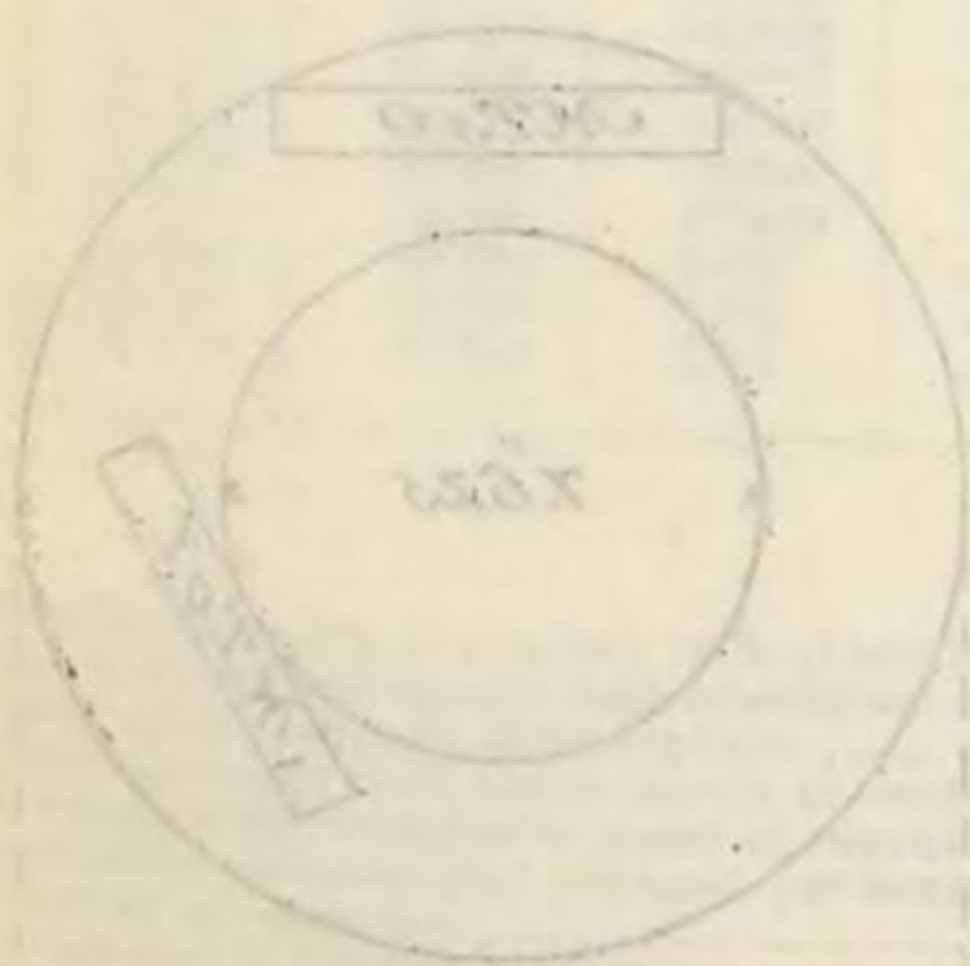
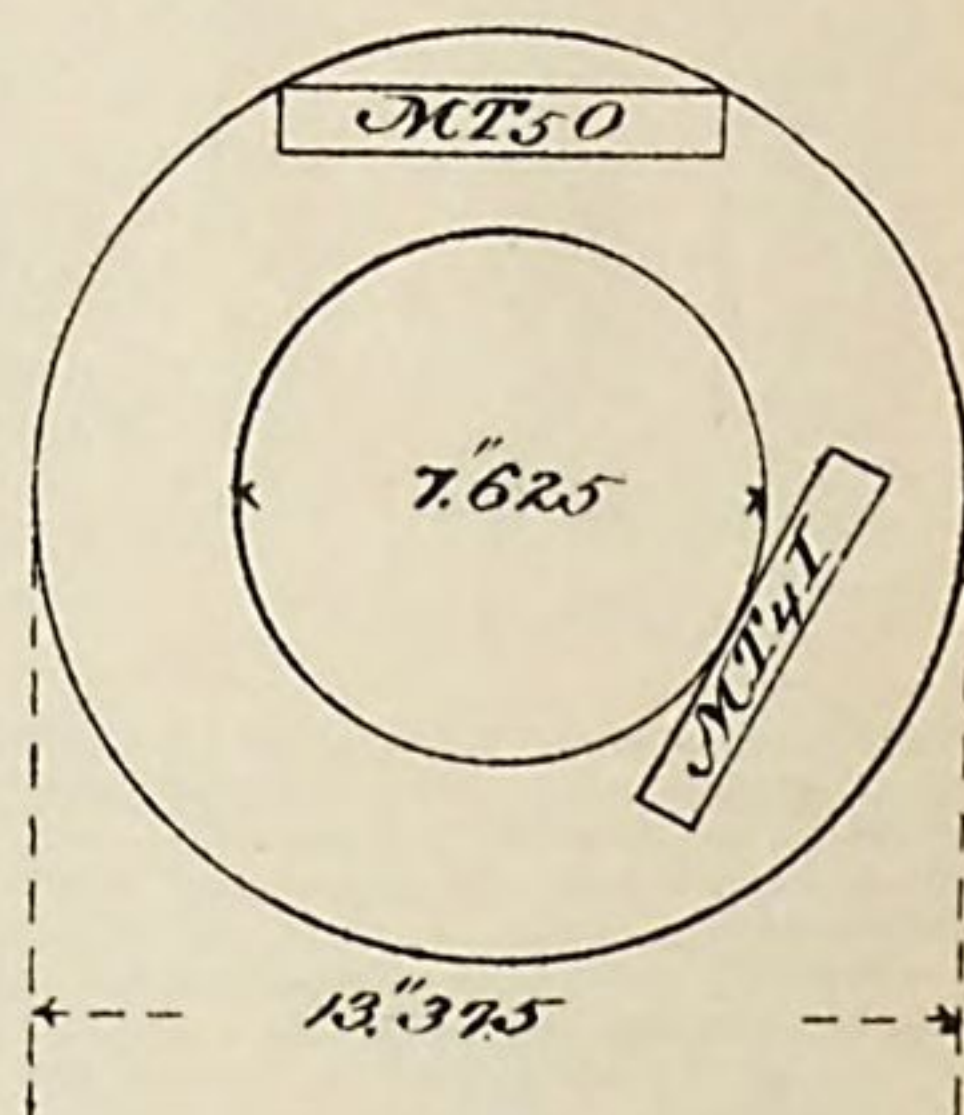
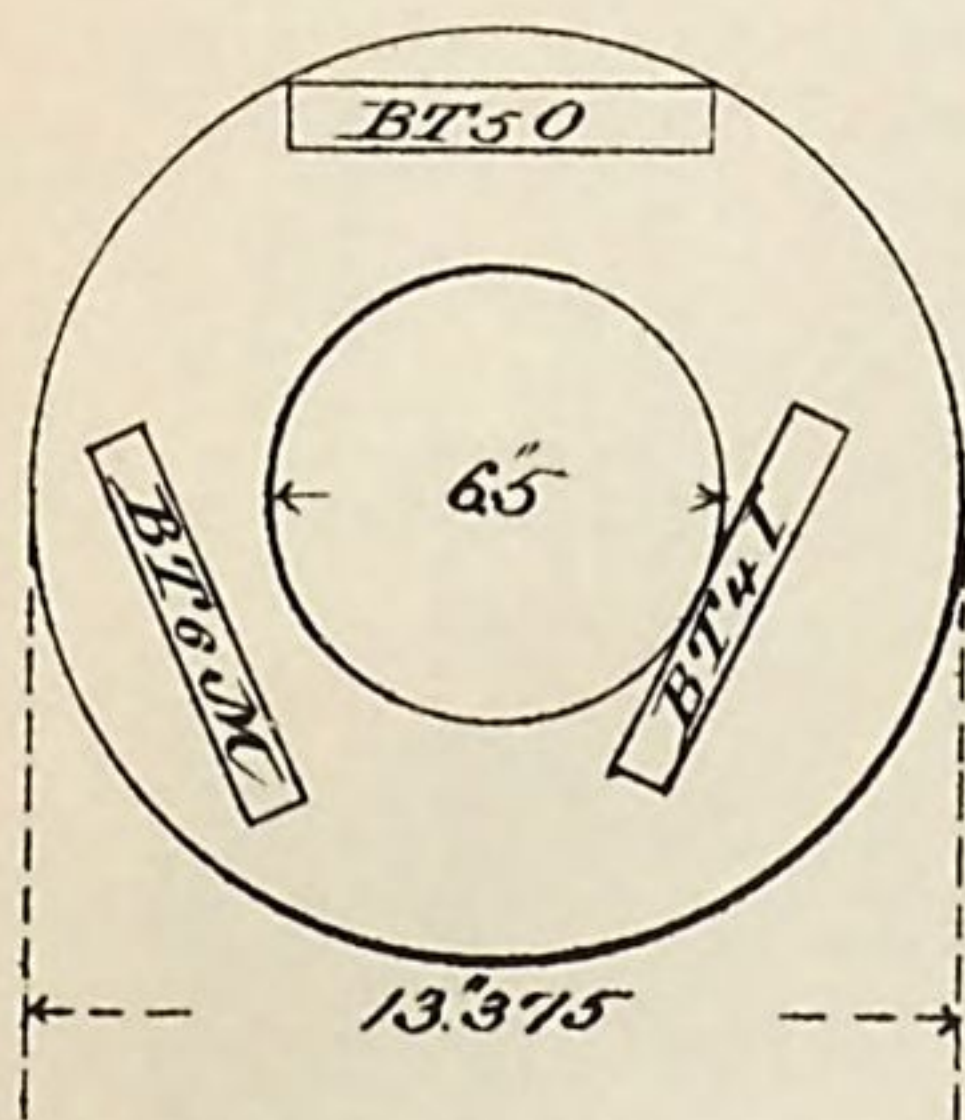


Fig. 10

Tube No. 19 8" converted Rifle

Additional specimens



H Ex 3/ 49 2

No. 2170.

Marks, $\frac{8}{B} \frac{T_{19}}{T_4} I$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000200	.000100	0.	.....	
3,750	15,000	.000367	.000167	0.	.....	
5,000	20,000	.000533	.000166	0.	.....	
6,250	25,000	.000700	.000167	0.	.....	
7,500	30,000	.000867	.000167	0.	.....	
8,750	35,000	.001033	.000166	0.		Elastic limit.
9,000	36,000	.001933	.000900	.....	.....	
9,250	37,000	.002300	.000367	.....	.....	
9,500	38,000	.003267	.000967	.....	.....	
9,750	39,000	.005133	.001866	.....	.....	
10,000	40,000	.006333	.001200	.....	.....	
10,250	41,000	.007067	.000734	.....	.....	
10,500	42,000	.008400	.001333	.....	.....	
10,750	43,000	.009367	.000967	.....	.....	
11,000	44,000	.010400	.001033	.....	.....	
11,250	45,000	.011433	.001033	.....	.....	
11,500	46,000	.012667	.001234	.....	.....	
11,750	47,000	.013733	.001066	.....	.....	
12,000	48,000	.015000	.001267	.....	.....	
12,250	49,000	.016367	.001367	.....	.....	
12,500	50,000	.017667	.001300	.....	.....	
13,000	52,000	.020400	.002733			Tensile strength.
13,500	54,000	.023700	.003300	.....	.....	
14,000	56,000	.027333	.003633	.....	.....	
14,500	58,000	.031333	.004000	.....	.....	
15,000	60,000	.035833	.004500	.....	.....	
15,500	62,000	.041000	.005167	.....	.....	
16,000	64,000	.046667	.005667	.....	.....	
16,500	66,000	.054000	.007333	.....	.....	
17,000	68,000	.062667	.008667	.....	.....	
17,500	70,000	.074500	.011833	.....	.....	
18,000	72,000	.0933	.0188	.....	.....	
18,500	74,000	.1400	.0467	.....	.....	
18,510	74,040	.1567	.0167	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	74,040
Elastic limit per square inch of original section	do ..	35,000
Elongation per inch after rupture	inch ..	0.2067
Elongation per inch under strain at elastic limit	do ..	.001033
Reduction in diameter at point of rupture	do ..	.124
Reduction in area after rupture, per centum of original section		39.2
Position of rupture	$\frac{1}{2}$ inch from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".28*, ".22, ".12	

No. 2171.

Marks, $\frac{8}{B} \frac{T_{19}}{T_{50}}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0		
2,500	10,000	.000300	.000167	0		
3,750	15,000	.000433	.000133	0		
5,000	20,000	.000600	.000167	0.		
6,250	25,000	.000767	.000167	0.		
7,500	30,000	.000933	.000166	0.		
8,750	35,000	.001067	.000134	0.		
9,000	36,000	.001133	.000066			
9,250	37,000	.001167	.000034			
9,500	38,000	.001200	.000033			
9,750	39,000	.001267	.000067			
10,000	40,000	.001400	.000133	.000133	.000133	Elastic limit.
10,250	41,000	.001500	.000100			
10,500	42,000	.005133	.003633			
10,750	43,000	.005867	.000734			
11,000	44,000	.006767	.000900			
11,250	45,000	.007800	.001033			
11,500	46,000	.008733	.000933			
11,750	47,000	.010000	.001267			
12,000	48,000	.010800	.000800			
12,250	49,000	.011800	.001000			
12,500	50,000	.013033	.001233			
12,750	51,000	.014167	.001134			
13,000	52,000	.015333	.001166			
13,250	53,000	.016667	.001334			
13,500	54,000	.017733	.001066			
13,750	55,000	.018833	.001100			
14,000	56,000	.020400	.001567			
14,250	57,000	.021667	.001267			
14,500	58,000	.023333	.001666			
14,750	59,000	.024667	.001334			
15,000	60,000	.026333	.001666			
15,500	62,000	.030000	.003667			
16,000	64,000	.034333	.004333			
16,500	66,000	.038333	.004000			
17,000	68,000	.043433	.005100			
17,500	70,000	.049867	.006434			
18,000	72,000	.056667	.006800			
18,500	74,000	.0667	.010033			
19,000	76,000	.0833	.0166			
19,500	78,000	.1067	.0234			
19,700	78,800	.1633	.0566			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	78,800
Elastic limit per square inch of original section.....	do...	39,000
Elongation per inch after rupture.....	inch..	0.2267
Elongation per inch under strain at elastic limit	do...	.001267
Reduction in diameter at point of rupture	do...	.155
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	1 inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".35*, ".21, ".12	

No. 2172.

Marks, $\begin{smallmatrix} 8 T_{12} \\ B T_6 M \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.		Elastic limit.
9,000	36,000	.001233	.000100	.....	.....	
9,250	37,000	.001367	.000134	.....	.....	
9,500	38,000	.002500	.001133	.....	.....	
9,750	39,000	.004500	.002000	.....	.....	
10,000	40,000	.005400	.000900	.....	.....	
10,250	41,000	.006167	.000767	.....	.....	
10,500	42,000	.007233	.001066	.....	.....	
10,750	43,000	.008000	.000767	.....	.....	
11,000	44,000	.008933	.000933	.....	.....	
11,250	45,000	.009867	.000934	.....	.....	
11,500	46,000	.011067	.001200	.....	.....	
11,750	47,000	.012100	.001033	.....	.....	
12,000	48,000	.013567	.001467	.....	.....	
12,250	49,000	.014767	.001200	.....	.....	
12,500	50,000	.016000	.001233	.....	.....	
13,000	52,000	.018333	.002333	.....	.....	
13,500	54,000	.021000	.002667	.....	.....	
14,000	56,000	.024333	.003333	.....	.....	
14,500	58,000	.027333	.003000	.....	.....	
15,000	60,000	.030667	.003334	.....	.....	
15,500	62,000	.035000	.004333	.....	.....	
16,000	64,000	.040000	.005000	.....	.....	
16,500	66,000	.045333	.005333	.....	.....	
17,000	68,000	.052333	.007000	.....	.....	
17,500	70,000	.061000	.008667	.....	.....	
18,000	72,000	.072167	.011167	.....	.....	
18,500	74,000	.0933	.021133	.....	.....	
19,000	76,000	.1267	.0334			Tensile strength.
19,120	76,480	.1700	.0433	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	76,480
Elastic limit per square inch of original section	do...	35,000
Elongation per inch after rupture	inch..	0.2133
Elongation per inch under strain at elastic limit	do...	.001133
Reduction in diameter at point of rupture	do...	.114
Reduction in area after rupture, per centum of original section		36.4
Position of rupture	".60 from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".23*, ".27*, ".14	

No. 2173.

Marks, $\frac{8 T_1^9}{M T_4 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.001033	.000233	.000033	.000033	
8,750	35,000	.001167	.000134	.000033	0.	
9,000	36,000	.001167	0.	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033			Elastic limit.
9,750	39,000	.001267	.000034	.....	.....	
10,000	40,000	.001333	.000066	.000033	0.	
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.001400	.000033	.....	.....	
10,750	43,000	.001467	.000067	.....	.....	
11,000	44,000	.001533	.000066	.....	.....	
11,250	45,000	.002367	.000834	.....	.....	
11,500	46,000	.004333	.001966	.....	.....	
11,750	47,000	.006033	.001700			Tensile strength.
12,000	48,000	.007567	.001534	.....	.....	
12,250	49,000	.008933	.001366	.....	.....	
12,500	50,000	.010000	.001067	.....	.....	
12,750	51,000	.011000	.001000	.....	.....	
13,000	52,000	.011933	.000933	.....	.....	
13,250	53,000	.012833	.000900	.....	.....	
13,500	54,000	.014000	.001167	.....	.....	
13,750	55,000	.014933	.000933	.....	.....	
14,000	56,000	.016667	.001734	.....	.....	
14,250	57,000	.017700	.001033			Tensile strength.
14,500	58,000	.019067	.001367	.....	.....	
14,750	59,000	.020700	.001633	.....	.....	
15,000	60,000	.022700	.002000	.....	.....	
15,500	62,000	.025500	.002800	.....	.....	
16,000	64,000	.029533	.004033	.....	.....	
16,500	66,000	.032667	.003134	.....	.....	
17,000	68,000	.037067	.004400	.....	.....	
17,500	70,000	.042667	.005600	.....	.....	
18,000	72,000	.048667	.006000	.....	.....	
18,500	74,000	.056667	.008000			Tensile strength.
19,000	76,000	.066667	.010000	.....	.....	
19,500	78,000	.0900	.023333	.....	.....	
20,000	80,000	.1233	.0333	.....	.....	
20,020	80,080	.1600	.0367	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	80,080
Elastic limit per square inch of original section.....	do...	44,000
Elongation per inch after rupture.....	inch..	0.2233
Elongation per inch under strain at elastic limit.....	do...	.001533
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....	".95 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".32*, ".19, ".16	

No. 2174.

Marks, $\frac{8}{M} \frac{T_{19}}{T_5 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.001000	.000200	.000033	.000033	
8,750	35,000	.001167	.000167	.000033	0.	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033	.....	.....	
9,500	38,000	.001300	.000067	.....	.....	
9,750	39,000	.001333	.000033	.....	.....	
10,000	40,000	.001367	.000034	.000033	0.	
10,250	41,000	.001400	.000033	.....	.....	
10,500	42,000	.001433	.000033	.....	.....	
10,750	43,000	.001467	.000034	.....	.....	
11,000	44,000	.001500	.000033	.....	.....	
11,250	45,000	.001567	.000067	.000100	.000067	Elastic limit.
11,500	46,000	.001733	.000166	.....	.....	
11,750	47,000	.004000	.002267	.....	.....	
12,000	48,000	.005833	.001833	.....	.....	
12,250	49,000	.006900	.001067	.....	.....	
12,500	50,000	.008067	.001167	.....	.....	
12,750	51,000	.009333	.001266	.....	.....	
13,000	52,000	.010333	.001000	.....	.....	
13,250	53,000	.011333	.001000	.....	.....	
13,500	54,000	.012833	.001500	.....	.....	
13,750	55,000	.013900	.001067	.....	.....	
14,000	56,000	.015200	.001300	.....	.....	
14,250	57,000	.016200	.001000	.....	.....	
14,500	58,000	.017667	.001467	.....	.....	
14,750	59,000	.018800	.001133	.....	.....	
15,000	60,000	.020000	.001200	.....	.....	
15,500	62,000	.023500	.003500	.....	.....	
16,000	64,000	.026667	.003167	.....	.....	
16,500	66,000	.030067	.003400	.....	.....	
17,000	68,000	.034333	.004266	.....	.....	
17,500	70,000	.039167	.004834	.....	.....	
18,000	72,000	.044500	.005333	.....	.....	
18,500	74,000	.051667	.007167	.....	.....	
19,000	76,000	.060000	.008333	.....	.....	
19,500	78,000	.0733	.0133	.....	.....	
20,000	80,000	.0967	.0234	.....	.....	
20,210	80,840	.1500	.0533			Tensile strength

General summary.

Tensile strength per square inch of original section	pounds..	80,840
Elastic limit per square inch of original section	do...	45,000
Elongation per inch after rupture	inch..	0.2300
Elongation per inch under strain at elastic limit	do...	.001567
Reduction in diameter at point of rupture	do...	.134
Reduction in area after rupture, per centum of original section		41.9
Position of rupture	at middle of stem	
Character of broken surface	silky	
Elongation of inch sections	"1.4, ".39*, ".16	

NEW TUBE NO. 19.

No. 2499.

Marks, $\frac{8}{B} \frac{T_{19}}{T_7} I$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001033	.000200	.000033	.000033	
8,750	35,000	.001233	.000200	.....	.....	
9,000	36,000	.001333	.000100	.....	.....	
9,250	37,000	.001400	.000067			Elastic limit.
9,500	38,000	.001500	.000100	.....	.....	
9,750	39,000	.004332	.002833	.....	.....	
10,000	40,000	.005867	.001534	.....	.....	
10,250	41,000	.006867	.001000	.....	.....	
10,500	42,000	.008167	.001300	.....	.....	
10,750	43,000	.009200	.001033	.....	.....	
11,000	44,000	.010667	.001467	.....	.....	
11,250	45,000	.012000	.001333	.....	.....	
11,500	46,000	.013333	.001333	.....	.....	
11,750	47,000	.014433	.001100	.....	.....	
12,000	48,000	.015667	.001234	.....	.....	
12,250	49,000	.016767	.001100	.....	.....	
12,500	50,000	.018833	.002066	.....	.....	
13,000	52,000	.023000	.004167	.....	.....	
13,500	54,000	.026500	.003500	.....	.....	
14,000	56,000	.030000	.003500	.....	.....	
14,500	58,000	.034500	.004500	.....	.....	
15,000	60,000	.040000	.005500	.....	.....	
15,500	62,000	.045667	.005667	.....	.....	
16,000	64,000	.053333	.007666	.....	.....	
16,500	66,000	.061667	.008334	.....	.....	
17,000	68,000	.0767	.015033	.....	.....	
17,500	70,000	.0967	.0200	.....	.....	
17,990	71,960	.1633	.0666			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	71,960
Elastic limit per square inch of original section	do...	38,000
Elongation per inch after rupture	inch..	0.2733
Elongation per inch under strain at elastic limit	do...	.001500
Reduction in diameter at point of rupture	do...	.204
Reduction in area after rupture, per centum of original section		59.3
Position of rupture	1".29 from neck	
Character of broken surface	silky	
Elongation of inch sections	".39*, ".29, ".14	

No. 2500.

Marks, $\frac{8}{B} \frac{T_{19}}{T_8} O$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000467	.000134	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000833	.000200	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001200	.000200	.....	.....	Elastic limit.
9,000	36,000	.001467	.000267	.....	.....	
9,250	37,000	.002900	.001433	.....	.....	
9,500	38,000	.005400	.002500	.....	.....	
9,750	39,000	.006633	.001233	.....	.....	
10,000	40,000	.008100	.001467	.....	.....	
10,250	41,000	.009000	.000900	.....	.....	
10,500	42,000	.010400	.001400	.....	.....	
10,750	43,000	.011333	.000933	.....	.....	
11,000	44,000	.012667	.001334	.....	.....	
11,250	45,000	.013667	.001000	.....	.....	
11,500	46,000	.015000	.001333	.....	.....	
11,750	47,000	.016333	.001333	.....	.....	
12,000	48,000	.018333	.002000	.....	.....	
12,250	49,000	.019000	.000667	.....	.....	
12,500	50,000	.021000	.002000	.....	.....	
13,000	52,000	.024667	.003667	.....	.....	
13,500	54,000	.028333	.003666	.....	.....	
14,000	56,000	.033333	.005000	.....	.....	
14,500	58,000	.037000	.003667	.....	.....	
15,000	60,000	.042333	.005333	.....	.....	
15,500	62,000	.048667	.006334	.....	.....	
16,000	64,000	.056167	.007500	.....	.....	
16,500	66,000	.0700	.013833	.....	.....	
17,000	68,000	.0833	.0133	.....	.....	
17,500	70,000	.1033	.0200	.....	.....	
17,980	71,920	.1667	.0634	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	71,920
Elastic limit per square inch of original section.....	do...	35,000
Elongation per inch after rupture.....	inch..	0.2533
Elongation per inch under strain at elastic limit.....	do...	.001200
Reduction in diameter at point of rupture.....	do...	.194
Reduction in area after rupture, per centum of original section.....		57.0
Position of rupture.....	".70 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".13, ".17, ".46*	

No. 2501.

Marks, $\frac{8 T_{12}}{B T_2 M}$
 Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000300	.000200	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	.....	.....	Elastic limit.
9,000	36,000	.011133	.010000	.....	.....	
9,250	37,000	.012067	.000934	.....	.....	
9,500	38,000	.012600	.000533	.....	.....	
9,750	39,000	.013333	.000733	.....	.....	
10,000	40,000	.015000	.001667	.....	.....	
10,250	41,000	.016667	.001667	.....	.....	
10,500	42,000	.017833	.001166	.....	.....	
10,750	43,000	.019167	.001334	.....	.....	
11,000	44,000	.020600	.001433	.....	.....	
11,250	45,000	.022333	.001733	.....	.....	
11,500	46,000	.024100	.001767	.....	.....	
11,750	47,000	.025667	.001567	.....	.....	
12,000	48,000	.028000	.002333	.....	.....	
12,250	49,000	.029333	.001333	.....	.....	
12,500	50,000	.032000	.002667	.....	.....	
13,000	52,000	.037000	.005000	.....	.....	
13,500	54,000	.043333	.006333	.....	.....	
14,000	56,000	.049667	.006334	.....	.....	
14,500	58,000	.056667	.007000	.....	.....	
15,000	60,000	.0700	.013333	.....	.....	
15,500	62,000	.0833	.0133	.....	.....	
16,000	64,000	.0967	.0134	.....	.....	
16,500	66,000	.1267	.0300	.....	.....	
16,820	67,280	.1933	.0666	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	67,280
Elastic limit per square inch of original section	do...	35,000
Elongation per inch after rupture	inch..	0.3067
Elongation per inch under strain at elastic limit	do...	.001133
Reduction in diameter at point of rupture	do...	.194
Reduction in area after rupture, per centum of original section		57.0
Position of rupture		1".60 from neck
Character of broken surface		silky; opened cracks in surface of stem
Elongation of inch sections		".19, ".49, ".24*

No. 2502.

Marks, $\frac{8}{M} \frac{T_{19}}{T_6 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000867	.000200	0.	.....	
7,500	30,000	.001033	.000166	0.	.....	
8,750	35,000	.001167	.000134	.....	.....	
9,000	36,000	.001233	.000066	.....	.....	
9,250	37,000	.001267	.000034	.....	.....	
9,500	38,000	.001300	.000033	.....	.....	
9,750	39,000	.001333	.000033	.....	.....	
10,000	40,000	.001400	.000067	.....	.....	
10,250	41,000	.001467	.000067	.....	.....	Elastic limit.
10,500	42,000	.001633	.000166	.....	.....	
10,750	43,000	.002533	.000900	.....	.....	
11,000	44,000	.004067	.001534	.....	.....	
11,250	45,000	.005733	.001666	.....	.....	
11,500	46,000	.007333	.001600	.....	.....	
11,750	47,000	.008667	.001334	.....	.....	
12,000	48,000	.009667	.001000	.....	.....	
12,250	49,000	.010332	.000666	.....	.....	
12,500	50,000	.011667	.001334	.....	.....	
13,000	52,000	.014433	.002766	.....	.....	
13,500	54,000	.017333	.002900	.....	.....	
14,000	56,000	.020233	.002900	.....	.....	
14,500	58,000	.023333	.003100	.....	.....	
15,000	60,000	.026667	.003334	.....	.....	
15,500	62,000	.030100	.003433	.....	.....	
16,000	64,000	.034167	.004067	.....	.....	
16,500	66,000	.038833	.004666	.....	.....	
17,000	68,000	.044500	.005667	.....	.....	
17,500	70,000	.051333	.006833	.....	.....	
18,000	72,000	.059667	.008334	.....	.....	
18,500	74,000	.0733	.013633	.....	.....	
19,000	76,000	.0933	.0200	.....	.....	
19,480	77,920	.1433	.0500	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	77,920
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture.....	inch..	0.1733
Elongation per inch under strain at elastic limit	do...	.001467
Reduction in diameter at point of rupture	do...	.094
Reduction in area after rupture, per centum of original section		30.6
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections	".13, ".15, ".24*	

No. 2503.

Marks, $\frac{8}{M} T_{19}$, $\frac{O}{T_7}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000767	.000200	0.	.....	
7,500	30,000	.000967	.000200	0.	.....	
8,750	35,000	.001133	.000166	.....	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001233	.000066	.....	.....	
9,500	38,000	.001267	.000034			Elastic limit.
9,750	39,000	.001333	.000066	.....	.....	
10,000	40,000	.001400	.000067	.....	.....	
10,250	41,000	.001433	.000033	.....	.....	
10,500	42,000	.004500	.003067	.....	.....	
10,750	43,000	.005500	.001000	.....	.....	
11,000	44,000	.007500	.002000	.....	.....	
11,250	45,000	.008667	.001167	.....	.....	
11,500	46,000	.010000	.001333	.....	.....	
11,750	47,000	.011000	.001000	.....	.....	
12,000	48,000	.011833	.000833			Tensile strength.
12,250	49,000	.012667	.000834	.....	.....	
12,500	50,000	.014167	.001500	.....	.....	
13,000	52,000	.016667	.002500	.....	.....	
13,500	54,000	.020000	.003333	.....	.....	
14,000	56,000	.022700	.002700	.....	.....	
14,500	58,000	.025833	.003133	.....	.....	
15,000	60,000	.029667	.003834	.....	.....	
15,500	62,000	.033333	.003666	.....	.....	
16,000	64,000	.038000	.004667	.....	.....	
16,500	66,000	.043333	.005333	.....	.....	
17,000	68,000	.049667	.006334	.....	.....	
17,500	70,000	.057333	.007666	.....	.....	
18,000	72,000	.0700	.012667	.....	.....	
18,500	74,000	.0867	.0167	.....	.....	
19,000	76,000	.1133	.0266	.....	.....	
19,200	76,800	.1433	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	76,800
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch..	0.2633
Elongation per inch under strain at elastic limit	do...	.001433
Reduction in diameter at point of rupture	do...	.184
Reduction in area after rupture, per centum of original section .....	.....	54.6
Position of rupture	1".55 from neck; oblique	
Character of broken surface .....	.....	silky
Elongation of inch sections .....	.....	".13, ".43*, ".23

No. 2504.

Marks, $\frac{8}{M} T_{19}$ Diameter, $\frac{11}{16}$ inch.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000967	.000200	0.	.....	
8,750	35,000	.001133	.000166	.....	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001233	.000066	.....	.....	
9,500	38,000	.001333	.000100	.....	.....	
9,750	39,000	.001400	.000067	.....	.....	Elastic limit.
10,000	40,000	.001533	.000133	.....	.....	
10,250	41,000	.004067	.002534	.....	.....	
10,500	42,000	.007100	.003033	.....	.....	
10,750	43,000	.008000	.000900	.....	.....	
11,000	44,000	.009333	.001333	.....	.....	
11,250	45,000	.010700	.001367	.....	.....	
11,500	46,000	.011413	.000713	.....	.....	
11,750	47,000	.012367	.000954	.....	.....	
12,000	48,000	.013933	.001566	.....	.....	
12,250	49,000	.014833	.000900	.....	.....	
12,500	50,000	.016333	.001500	.....	.....	
13,000	52,000	.019567	.003234	.....	.....	
13,500	54,000	.023000	.003433	.....	.....	
14,000	56,000	.027000	.004000	.....	.....	
14,500	58,000	.029167	.002167	.....	.....	
15,000	60,000	.033167	.004000	.....	.....	
15,500	62,000	.038500	.005333	.....	.....	
16,000	64,000	.044000	.095500	.....	.....	
16,500	66,000	.050833	.006833	.....	.....	
17,000	68,000	.058167	.007334	.....	.....	
17,500	70,000	.0667	.008533	.....	.....	
18,000	72,000	.0833	.0166	.....	.....	
18,500	74,000	.1067	.0234	.....	.....	
18,760	75,040	.1600	.0533	.....	.....	Tensile strength.

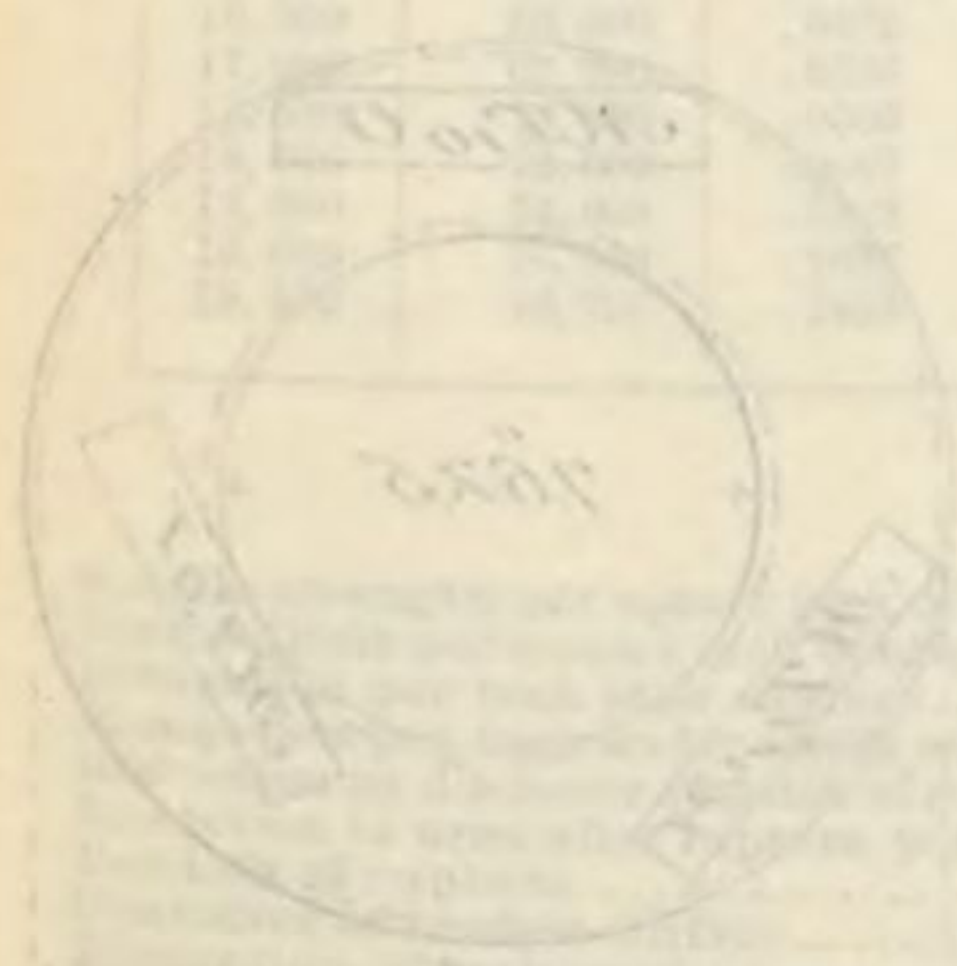
General summary.

Tensile strength per square inch of original section.....	pounds..	75,040
Elastic limit per square inch of original section	do...	39,000
Elongation per inch after rupture	inch..	0.2367
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.184
Reduction in area after rupture, per centum of original section		54.6
Position of rupture	1 inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".41*, ".18, ".12	

No. 2024.

Mark, $\frac{1}{2}$ in. T
 Diameter, $\frac{1}{2}$ in.
 Sectional area, .25 square inch.

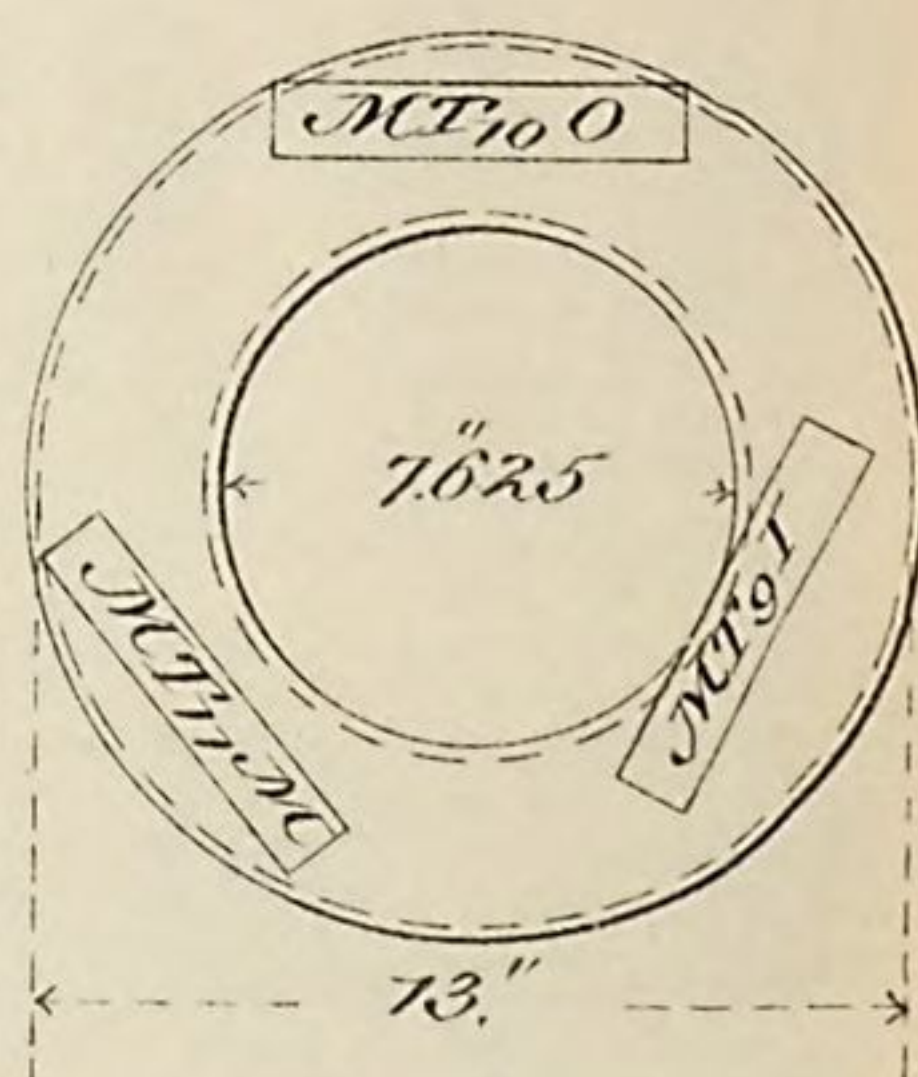
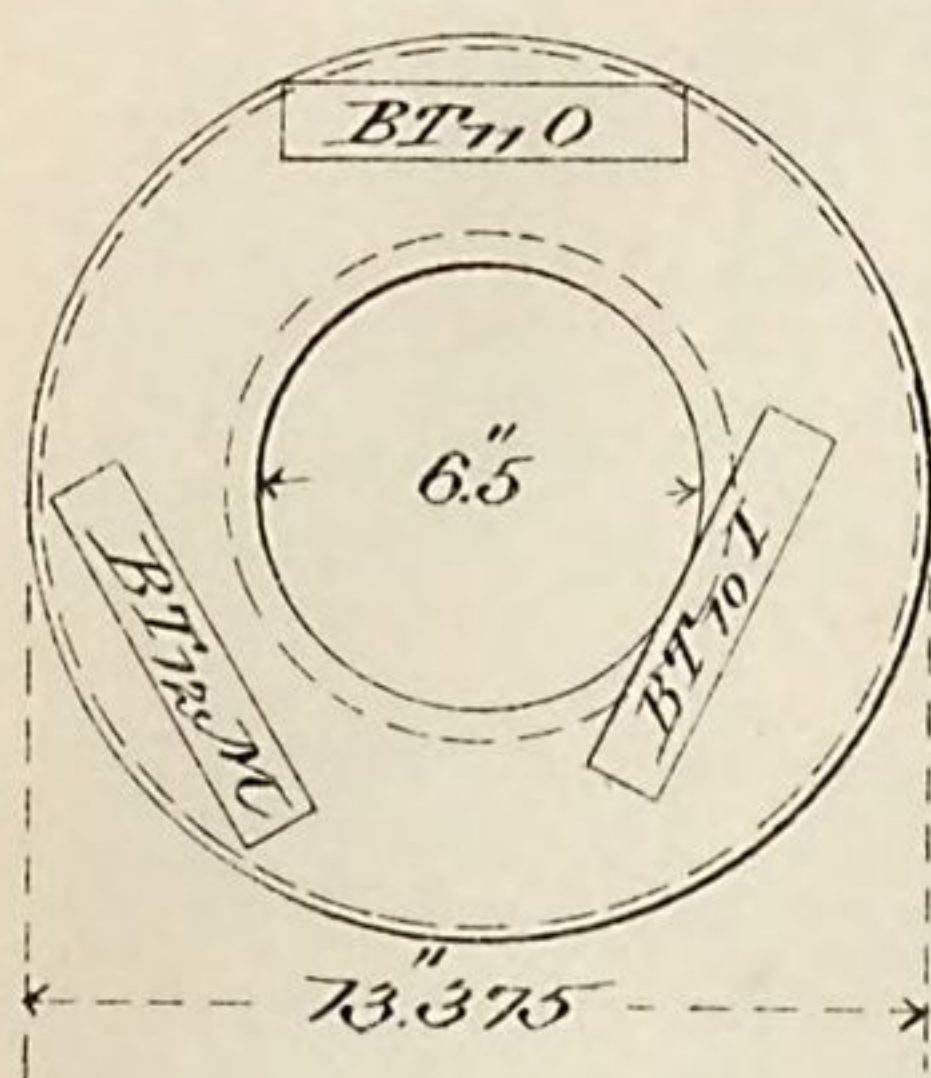
Applied loads.		Elongation per inch.	Reduction of area per inch.	Permanent set.	Residual elongation per inch.	Remarks.
Pounds.	Tons.					
100	0.005					
200	0.010					
300	0.015					
400	0.020					
500	0.025					
600	0.030					
700	0.035					
800	0.040					
900	0.045					
1000	0.050					
1100	0.055					
1200	0.060					
1300	0.065					
1400	0.070					
1500	0.075					
1600	0.080					
1700	0.085					
1800	0.090					
1900	0.095					
2000	0.100					
2100	0.105					
2200	0.110					
2300	0.115					
2400	0.120					
2500	0.125					
2600	0.130					
2700	0.135					
2800	0.140					
2900	0.145					
3000	0.150					
3100	0.155					
3200	0.160					
3300	0.165					
3400	0.170					
3500	0.175					
3600	0.180					
3700	0.185					
3800	0.190					
3900	0.195					
4000	0.200					
4100	0.205					
4200	0.210					
4300	0.215					
4400	0.220					
4500	0.225					
4600	0.230					
4700	0.235					
4800	0.240					
4900	0.245					
5000	0.250					



EX 31.435

New Tube No. 19 8" converted Rifle

Additional specimens



H Ex 3 / 49 2

No. 2624.

Marks, $\frac{8}{B} \frac{C_n}{T_{10}} \frac{R_{19}}{I} T$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000533	.000200	0.	.....	
5,000	20,000	.000700	.000167	0.	.....	
6,250	25,000	.000867	.000167	0.	.....	
7,500	30,000	.001033	.000166	.000033	.000033	
8,750	35,000	.001167	.000134	.....	.....	
10,000	40,000	.001367	.000200	.....	.....	
10,250	41,000	.001400	.000033			Elastic limit.
10,500	42,000	.003167	.001767	.....	.....	
10,750	43,000	.005667	.002500	.....	.....	
11,000	44,000	.007100	.001433	.....	.....	
11,250	45,000	.008000	.000900	.....	.....	
11,500	46,000	.009233	.001233	.....	.....	
11,750	47,000	.010233	.001000	.....	.....	
12,000	48,000	.011567	.001334	.....	.....	
12,250	49,000	.012667	.001100	.....	.....	
12,500	50,000	.014033	.001366	.....	.....	
13,000	52,000	.016433	.002400	.....	.....	
13,500	54,000	.019333	.002900	.....	.....	
14,000	56,000	.022000	.002667	.....	.....	
14,500	58,000	.025200	.003200	.....	.....	
15,000	60,000	.028667	.003467	.....	.....	
15,500	62,000	.032900	.004233	.....	.....	
16,000	64,000	.037067	.004167	.....	.....	
16,500	66,000	.0433	.006233	.....	.....	
17,000	68,000	.0533	.0100	.....	.....	
17,500	70,000	.0600	.0067	.....	.....	
18,000	72,000	.0667	.0067	.....	.....	
18,500	74,000	.0833	.0166	.....	.....	
19,000	76,000	.1067	.0234	.....	.....	
19,180	76,720	.1433	.0366			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	76,720
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.2333
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....		".95 from neck
Character of broken surface.....		silky; opened cracks in surface of stem
Elongation of inch sections.....		".12, ".21, ".37*

No. 2625.

Marks, $\frac{8}{B} \frac{C_n}{T_{11}} \frac{R_{19}}{O} T$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000733	.000133	0.	.....	
7,500	30,000	.000933	.000200	0.	.....	
8,750	35,000	.001100	.000167	.....	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001200	.000067			Elastic limit.
9,500	38,000	.001333	.000133	.....	.....	
9,750	39,000	.002000	.000667	.....	.....	
10,000	40,000	.003667	.001667	.....	.....	
10,250	41,000	.005667	.002000	.....	.....	
10,500	42,000	.007000	.001333	.....	.....	
10,750	43,000	.008567	.001567	.....	.....	
11,000	44,000	.009367	.000800	.....	.....	
11,500	46,000	.011067	.001700	.....	.....	
12,000	48,000	.013533	.002466	.....	.....	
12,500	50,000	.015667	.002134	.....	.....	
13,000	52,000	.018333	.002666	.....	.....	
13,500	54,000	.021367	.003034	.....	.....	
14,000	56,000	.024333	.002966	.....	.....	
14,500	58,000	.028000	.003667	.....	.....	
15,000	60,000	.032033	.004033			Tensile strength.
15,500	62,000	.036033	.004000	.....	.....	
16,000	64,000	.0400	.003967	.....	.....	
16,500	66,000	.0467	.0067	.....	.....	
17,000	68,000	.0567	.0100	.....	.....	
17,500	70,000	.0667	.0100	.....	.....	
18,000	72,000	.0767	.0100	.....	.....	
18,500	74,000	.1033	.0266	.....	.....	
18,950	75,800	.1633	.0600	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	75,800
Elastic limit per square inch of original section	do...	37,000
Elongation per inch after rupture	inch..	0.2333
Elongation per inch under strain at elastic limit	do...	.001200
Reduction in diameter at point of rupture	do...	.134
Reduction in area after rupture, per centum of original section....		41.9
Position of rupture	1".65 from neck	
Character of broken surface	silky	
Elongation of inch sections	".17, ".38*, ".15	

No. 2626.

Marks, $\begin{smallmatrix} 8 C_a R_{19} T \\ B T_{12} M \end{smallmatrix}$

Diameter ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000267	.000134	0.	-----	
3,750	15,000	.000433	.000166	0.	-----	
5,000	20,000	.000667	.000234	0.	-----	
6,250	25,000	.000800	.000133	0.	-----	
7,500	30,000	.001000	.000200	0.	-----	
8,750	35,000	.001167	.000167	-----	-----	
9,000	36,000	.001200	.000033	-----	-----	
9,250	37,000	.001267	.000067	-----	-----	Elastic limit.
9,500	38,000	.001333	.000066	-----	-----	
9,750	39,000	.002000	.000667	-----	-----	
10,000	40,000	.004767	.002767	-----	-----	
10,250	41,000	.006033	.001266	-----	-----	
10,500	42,000	.007167	.001134	-----	-----	
10,750	43,000	.008233	.001066	-----	-----	
11,000	44,000	.009367	.001134	-----	-----	
11,500	46,000	.011900	.002533	-----	-----	
12,000	48,000	.014333	.002433	-----	-----	
12,500	50,000	.016667	.002334	-----	-----	
13,000	52,000	.019067	.002400	-----	-----	
13,500	54,000	.022033	.002966	-----	-----	
14,000	56,000	.025467	.003434	-----	-----	
14,500	58,000	.029000	.003533	-----	-----	
15,000	60,000	.032833	.003833	-----	-----	Tensile strength.
15,500	62,000	.037233	.004400	-----	-----	
16,000	64,000	.0433	.006067	-----	-----	
16,500	66,000	.0500	.0067	-----	-----	
17,000	68,000	.0567	.0067	-----	-----	
17,500	70,000	.0667	.0100	-----	-----	
18,000	72,000	.0767	.0100	-----	-----	
18,500	74,000	.1033	.0266	-----	-----	
18,820	75,280	.1667	.0634	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	75,280
Elastic limit per square inch of original section.....	do...	38,000
Elongation per inch after rupture.....	inch..	0.2367
Elongation per inch under strain at elastic limit.....	do...	.001333
Reduction in diameter at point of rupture.....	do...	.174
Reduction in area after rupture, per centum of original section.....	do...	52.2
Position of rupture.....	1".20 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".35*, ".23, ".13	

H. Ex. 31—45

No. 2627.

Marks, $\frac{8 C_n R_{19} T}{M T_9 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000200	.000200	.000033	.000033	
2,500	10,000	.000433	.000233	.000067	.000034	
3,750	15,000	.000633	.000200	.000067	0.	
5,000	20,000	.000333	.000200	.000067	0.	
6,250	25,000	.000967	.000134	.000067	0.	
7,500	30,000	.001133	.000166	.000067	0.	
8,750	35,000	.001333	.000200	.....	.....	
9,000	36,000	.001367	.000034	.....	.....	
9,250	37,000	.001400	.000033	.....	.....	
9,500	38,000	.001433	.000033	.....	.....	
9,750	39,000	.001500	.000067	.....	.....	
10,000	40,000	.001533	.000033	.....	.....	Elastic limit.
10,250	41,000	.001667	.000134	.....	.....	
10,500	42,000	.002033	.000366	.....	.....	
10,750	43,000	.003333	.001300	.....	.....	
11,000	44,000	.005400	.002067	.....	.....	
11,250	45,000	.006400	.001000	.....	.....	
11,500	46,000	.007700	.001300	.....	.....	
12,000	48,000	.009867	.002167	.....	.....	
12,500	50,000	.012167	.002300	.....	.....	
13,000	52,000	.014733	.002566	.....	.....	
13,500	54,000	.016833	.002100	.....	.....	
14,000	56,000	.019333	.002500	.....	.....	
14,500	58,000	.022500	.003167	.....	.....	
15,000	60,000	.025333	.002833	.....	.....	
15,500	62,000	.028867	.003534	.....	.....	
16,000	64,000	.032667	.003800	.....	.....	
16,500	66,000	.037500	.004833	.....	.....	
17,000	68,000	.0400	.0025	.....	.....	
17,500	70,000	.0467	.0067	.....	.....	
18,000	72,000	.0567	.0100	.....	.....	
18,500	74,000	.0667	.0100	.....	.....	
19,000	76,000	.0767	.0100	.....	.....	
19,500	78,000	.1067	.0300	.....	.....	
19,700	78,800	.1633	.0566	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	78,800
Elastic limit per square inch of original section	do...	40,000
Elongation per inch after rupture	inch..	0.2133
Elongation per inch under strain at elastic limit	do...	.001533
Reduction in diameter at point of rupture	do...	.194
Reduction in area after rupture, per centum of original section		57.0
Position of rupture	".05 from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".10, ".42*, ".12	

No. 2628.

Marks, $\begin{smallmatrix} 8CnR_{19}T \\ MT_{10}O \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	-----	
2,500	10,000	.000267	.000167	0.	-----	
3,750	15,000	.000433	.000166	0.	-----	
5,000	20,000	.000633	.000200	0.	-----	
6,250	25,000	.000767	.000134	0.	-----	
7,500	30,000	.000933	.000166	0.	-----	
8,750	35,000	.001100	.000167	-----	-----	
10,000	40,000	.001333	.000233	-----	-----	
10,250	41,000	.001367	.000034	-----	-----	
10,500	42,000	.001400	.000033	-----	-----	Elastic limit.
10,750	43,000	.001400	0.	-----	-----	
11,000	44,000	.001433	.000033	-----	-----	
11,250	45,000	.001533	.000100	-----	-----	
11,500	46,000	.001600	.000067	-----	-----	
11,750	47,000	.001767	.000167	-----	-----	
12,000	48,000	.002700	.000933	-----	-----	
12,250	49,000	.004167	.001467	-----	-----	
12,500	50,000	.006333	.002166	-----	-----	
13,000	52,000	.008400	.002067	-----	-----	Tensile strength.
13,500	54,000	.010667	.002267	-----	-----	
14,000	56,000	.013033	.002366	-----	-----	
14,500	58,000	.015333	.002300	-----	-----	
15,000	60,000	.018000	.002667	-----	-----	
15,500	62,000	.020400	.002400	-----	-----	
16,000	64,000	.023333	.002933	-----	-----	
16,500	66,000	.026500	.003167	-----	-----	
17,000	68,000	.029667	.003167	-----	-----	
17,500	70,000	.034000	.004333	-----	-----	
18,000	72,000	.038067	.004067	-----	-----	Tensile strength.
18,500	74,000	.0433	.005233	-----	-----	
19,000	76,000	.0467	.0034	-----	-----	
19,500	78,000	.0600	.0133	-----	-----	
20,000	80,000	.0667	.0067	-----	-----	
20,500	82,000	.0867	.0200	-----	-----	
20,900	83,600	.1333	.0466	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	83,600
Elastic limit per square inch of original section	do...	46,000
Elongation per inch after rupture	inch..	0.2067
Elongation per inch under strain at elastic limit	do...	.001600
Reduction in diameter at point of rupture	do...	.164
Reduction in area after rupture, per centum of original section		49.7
Position of rupture	".10 from neck	
Character of broken surface	silky	
Elongation of inch sections	".12, ".19, ".31"	

No. 2629.

Marks, $\frac{8}{M} C_n R_{19} T$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000867	.000234	0.	.....	
7,500	30,000	.001033	.000166	0.	.....	
8,750	35,000	.001233	.000200	.....	.....	
9,000	36,000	.001267	.000034	.....	.....	
9,250	37,000	.001267	0.	.....	.....	
9,500	38,000	.001300	.000033	.....	.....	
9,750	39,000	.001333	.000033	.....	.....	
10,000	40,000	.001367	.000034	.....	.....	
10,250	41,000	.001433	.000066	.....	.....	
10,500	42,000	.001433	0.	.....	.....	
10,750	43,000	.001467	.000034	.....	.....	
11,000	44,000	.001533	.000066			Elastic limit.
11,250	45,000	.001600	.000067	.....	.....	
11,500	46,000	.001833	.000233	.....	.....	
11,750	47,000	.002700	.000867	.....	.....	
12,000	48,000	.004667	.001967	.....	.....	
12,250	49,000	.005833	.001166	.....	.....	
12,500	50,000	.007333	.001500	.....	.....	
13,000	52,000	.009667	.002334	.....	.....	
13,500	54,000	.012000	.002333	.....	.....	
14,000	56,000	.014333	.002333	.....	.....	
14,500	58,000	.016867	.002534	.....	.....	
15,000	60,000	.019367	.002500	.....	.....	
15,500	62,000	.022033	.002666	.....	.....	
16,000	64,000	.025167	.003134	.....	.....	
16,500	66,000	.028833	.003666	.....	.....	
17,000	68,000	.032667	.003834	.....	.....	
17,500	70,000	.037500	.004833	.....	.....	
18,000	72,000	.0433	.0058			Tensile strength.
18,500	74,000	.0500	.0067	.....	.....	
19,000	76,000	.0567	.0067	.....	.....	
19,500	78,000	.0667	.0100	.....	.....	
20,000	79,000	.0800	.0133	.....	.....	
20,500	82,000	.1100	.0300	.....	.....	
20,560	82,240	.1500	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	82,240
Elastic limit per square inch of original section	do...	45,000
Elongation per inch after rupture	inch..	0.2033
Elongation per inch under strain at elastic limit	do...	.001600
Reduction in diameter at point of rupture	do...	.124
Reduction in area after rupture, per centum of original section		39.2
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections	".09, ".16, ".36*	

No. 1160

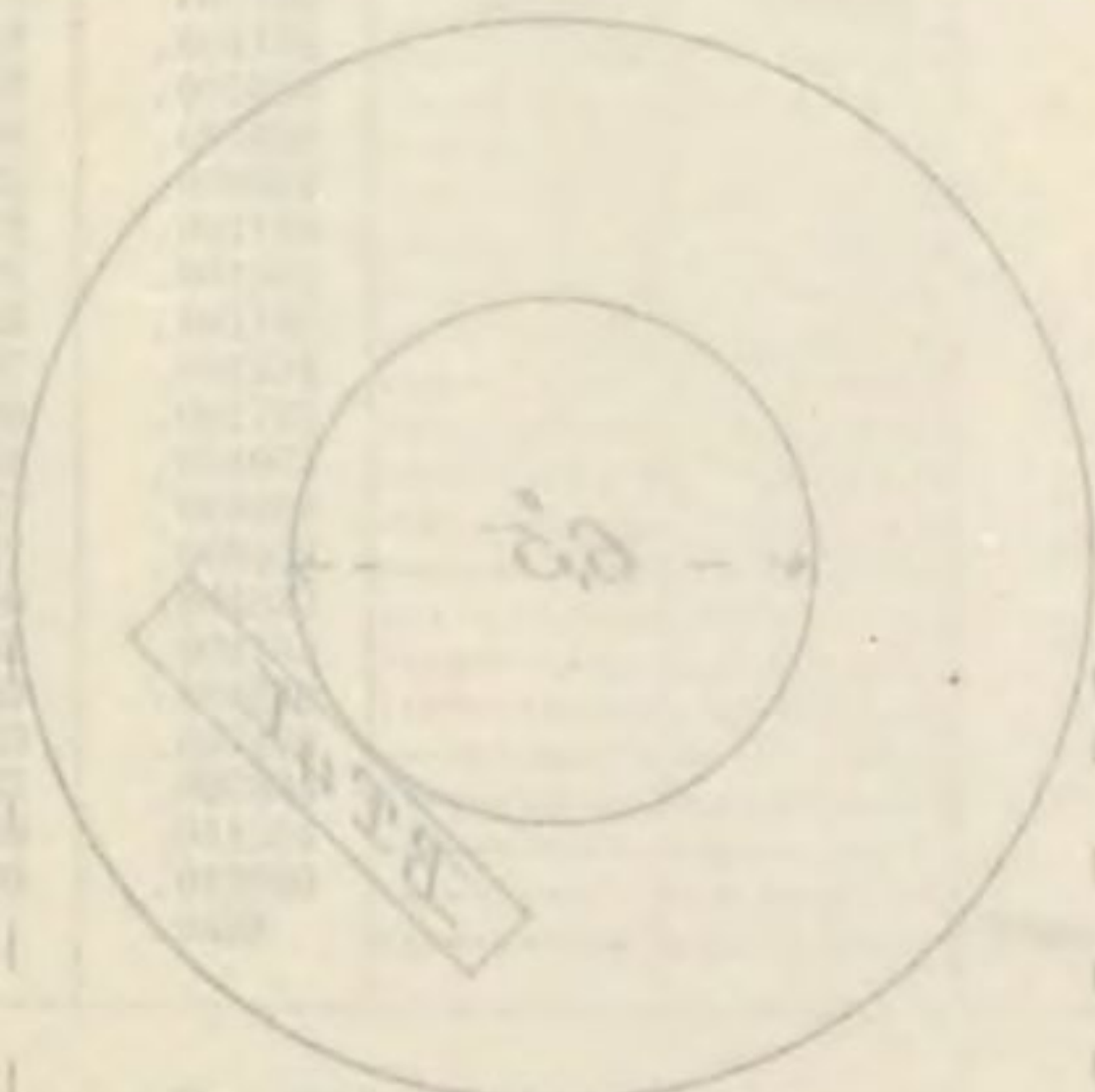
Mark, 873

Diameter, .564

Sectional area, .25 square inch.

Table No. 13 8" converted Rifle

Applied loads	Applied loads	Applied loads	Applied loads	Applied loads	Applied loads
100	100	100	100	100	100
200	200	200	200	200	200
300	300	300	300	300	300
400	400	400	400	400	400
500	500	500	500	500	500
600	600	600	600	600	600
700	700	700	700	700	700
800	800	800	800	800	800
900	900	900	900	900	900
1000	1000	1000	1000	1000	1000
1100	1100	1100	1100	1100	1100
1200	1200	1200	1200	1200	1200
1300	1300	1300	1300	1300	1300
1400	1400	1400	1400	1400	1400
1500	1500	1500	1500	1500	1500
1600	1600	1600	1600	1600	1600
1700	1700	1700	1700	1700	1700
1800	1800	1800	1800	1800	1800
1900	1900	1900	1900	1900	1900
2000	2000	2000	2000	2000	2000
2100	2100	2100	2100	2100	2100
2200	2200	2200	2200	2200	2200
2300	2300	2300	2300	2300	2300
2400	2400	2400	2400	2400	2400
2500	2500	2500	2500	2500	2500
2600	2600	2600	2600	2600	2600
2700	2700	2700	2700	2700	2700
2800	2800	2800	2800	2800	2800
2900	2900	2900	2900	2900	2900
3000	3000	3000	3000	3000	3000
3100	3100	3100	3100	3100	3100
3200	3200	3200	3200	3200	3200
3300	3300	3300	3300	3300	3300
3400	3400	3400	3400	3400	3400
3500	3500	3500	3500	3500	3500
3600	3600	3600	3600	3600	3600
3700	3700	3700	3700	3700	3700
3800	3800	3800	3800	3800	3800
3900	3900	3900	3900	3900	3900
4000	4000	4000	4000	4000	4000
4100	4100	4100	4100	4100	4100
4200	4200	4200	4200	4200	4200
4300	4300	4300	4300	4300	4300
4400	4400	4400	4400	4400	4400
4500	4500	4500	4500	4500	4500
4600	4600	4600	4600	4600	4600
4700	4700	4700	4700	4700	4700
4800	4800	4800	4800	4800	4800
4900	4900	4900	4900	4900	4900
5000	5000	5000	5000	5000	5000

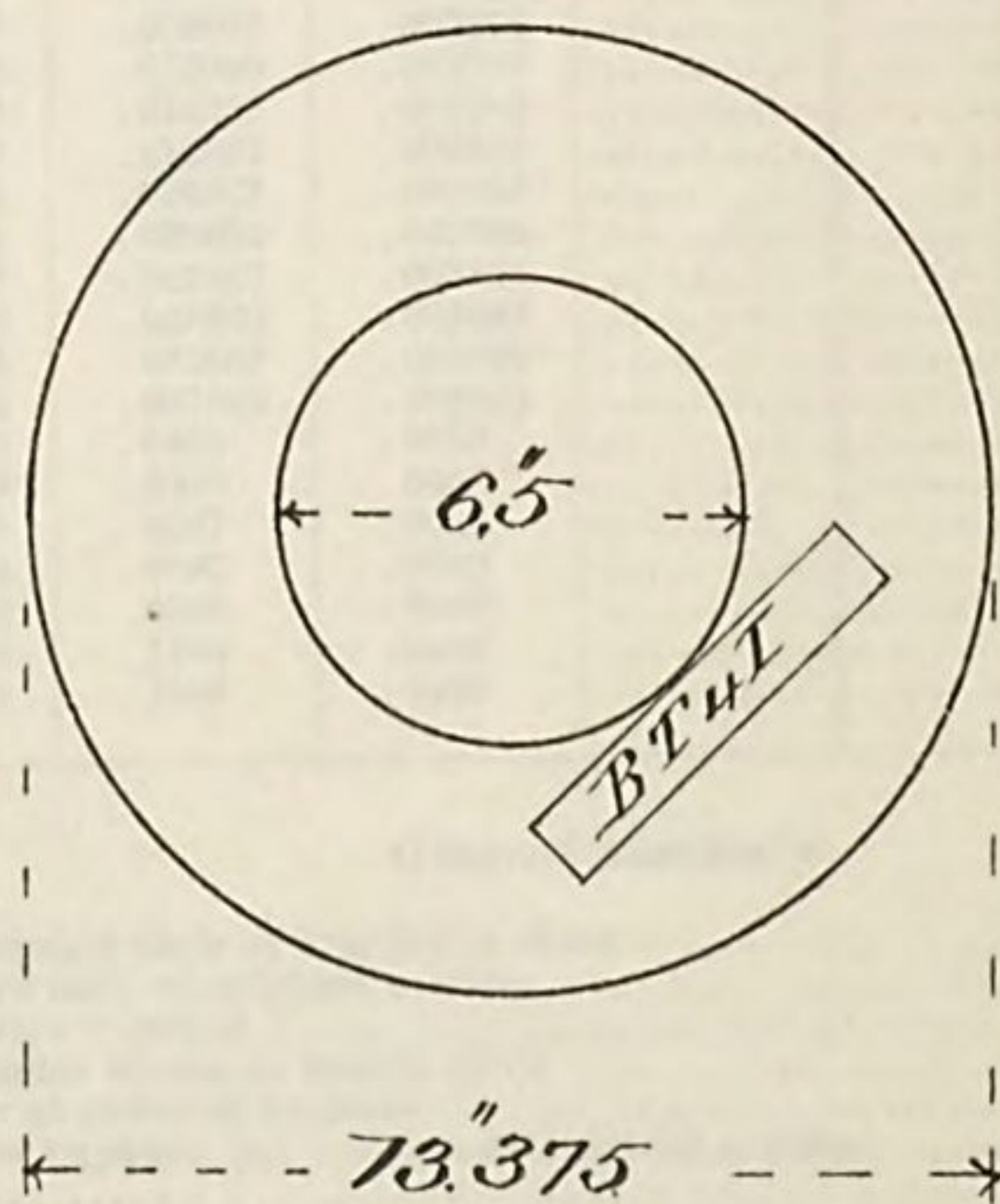


H Ex 3 1 40 5

13370

Tube No. 23 8" converted Rifle

Additional specimen



H Ex 3 / 49 2

No. 1160.

Marks, $\frac{8}{B} T_{23}$

Diameter, ".564

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
9,000	36,000	.001100	.000033	.....	.....	
9,250	37,000	.001133	.000033	.....	.....	
9,500	38,000	.001167	.000034	.....	.....	
9,750	39,000	.001200	.000033	.....	.....	
10,000	40,000	.001233	.000033	0.	.....	
10,250	41,000	.001267	.000034	.....	.....	
10,500	42,000	.001300	.000033	.....	.....	
10,750	43,000	.001300	0.	.....	.....	
11,000	44,000	.001333	.000033	.....	.....	
11,250	45,000	.001367	.000034	0.	.....	
11,500	46,000	.001433	.000066			Elastic limit.
11,750	47,000	.001567	.000134	.....	.....	
12,000	48,000	.002333	.000766	.....	.....	
12,250	49,000	.004167	.001834	.....	.....	
12,500	50,000	.005933	.001766	.004200	.004200	
12,750	51,000	.007067	.001134	.....	.....	
13,000	52,000	.008367	.001300	.....	.....	
13,250	53,000	.010000	.001633	.....	.....	
13,500	54,000	.010833	.000833	.....	.....	
13,750	55,000	.011933	.001100	.....	.....	
14,000	56,000	.013167	.001234	.....	.....	
14,250	57,000	.014333	.001166	.....	.....	
14,500	58,000	.015667	.001334	.....	.....	
14,750	59,000	.017400	.001733	.....	.....	
15,000	60,000	.019033	.001633	.....	.....	
15,500	62,000	.022267	.003234	.....	.....	
16,000	64,000	.025667	.003400	.....	.....	
16,500	66,000	.030000	.004333	.....	.....	
17,000	68,000	.034133	.004133	.....	.....	
17,500	70,000	.038933	.004800	.....	.....	
18,000	72,000	.046333	.007400	.....	.....	
18,500	74,000	.053667	.007334	.....	.....	
19,000	76,000	.065000	.011334	.....	.....	
19,500	78,000	.080500	.015500	.....	.....	
19,760	79,040	.1233	.0428			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	79,040
Elastic limit per square inch of original section.....	do..	46,000
Elongation per inch after rupture.....	inch..	0.2033
Elongation per inch under strain at elastic limit.....	do..	.001433
Reduction in diameter at point of rupture.....	do..	.094
Reduction in area after rupture, per centum of original section.....		30.6
Position of rupture.....		".65 from neck
Character of broken surface, granular; dull spot at circumference; crack ".3 long opened in cylindrical surface of stem.....		
Minimum diameter $\frac{1}{4}$ inch from point of rupture.....		".43
Elongation of inch sections.....		".36* ".15, ".10

See Table

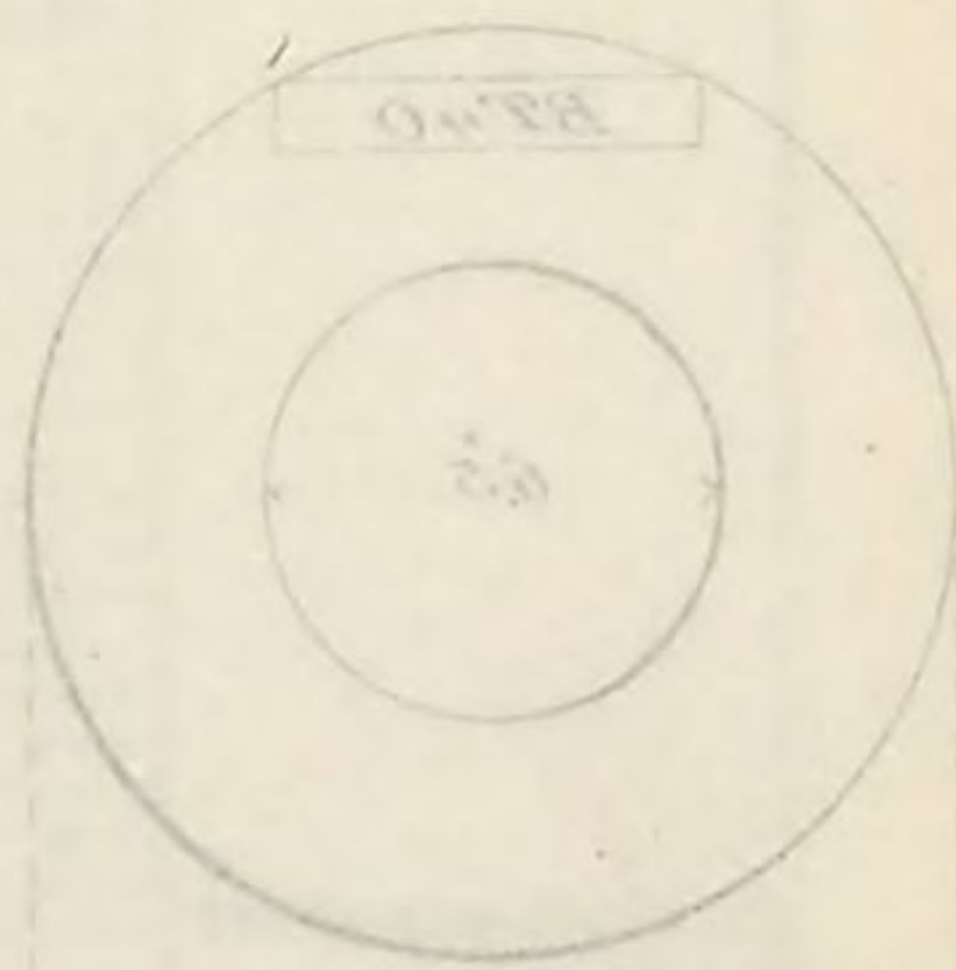
Marks, 8 1/2

Diameter, 0.364

Sectional area, .25 square inch.

Table No. 25 8 converted Rille

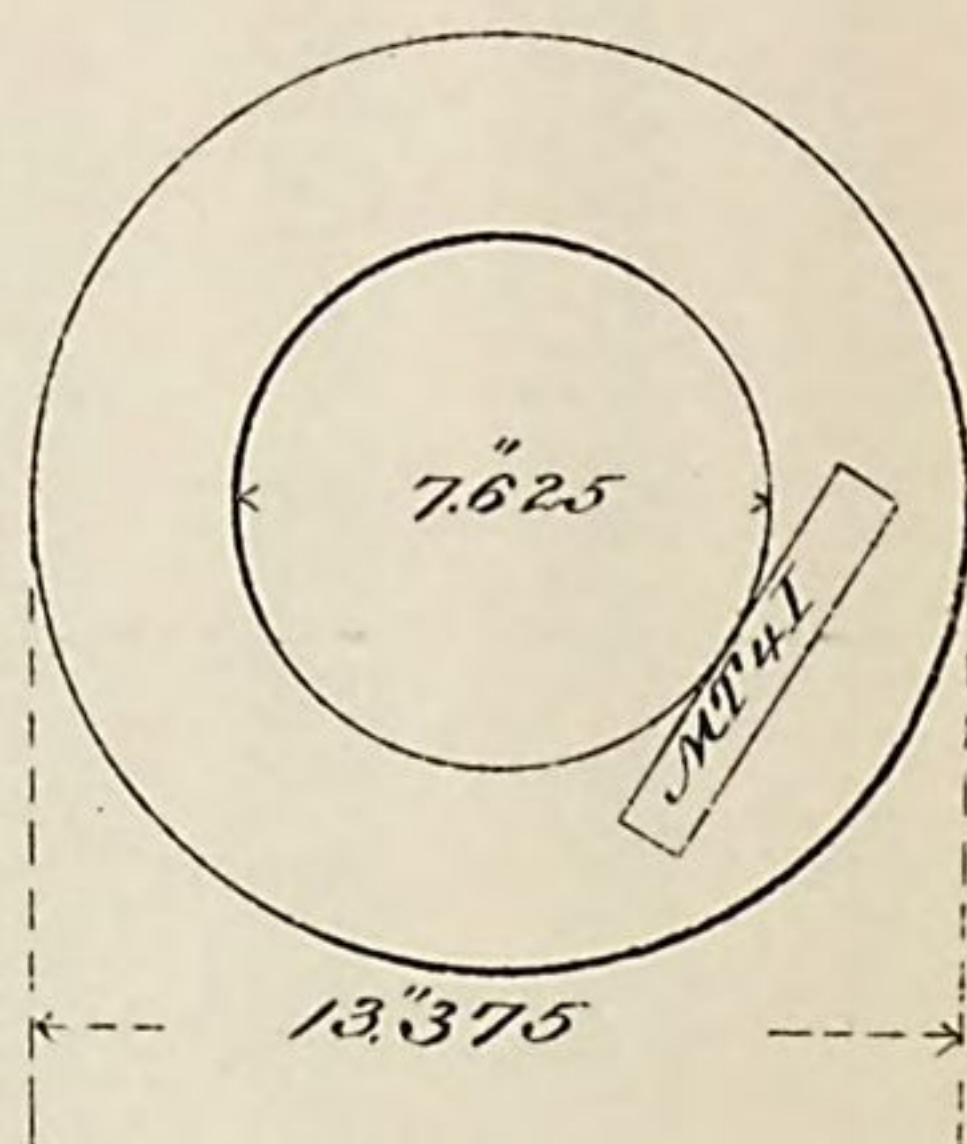
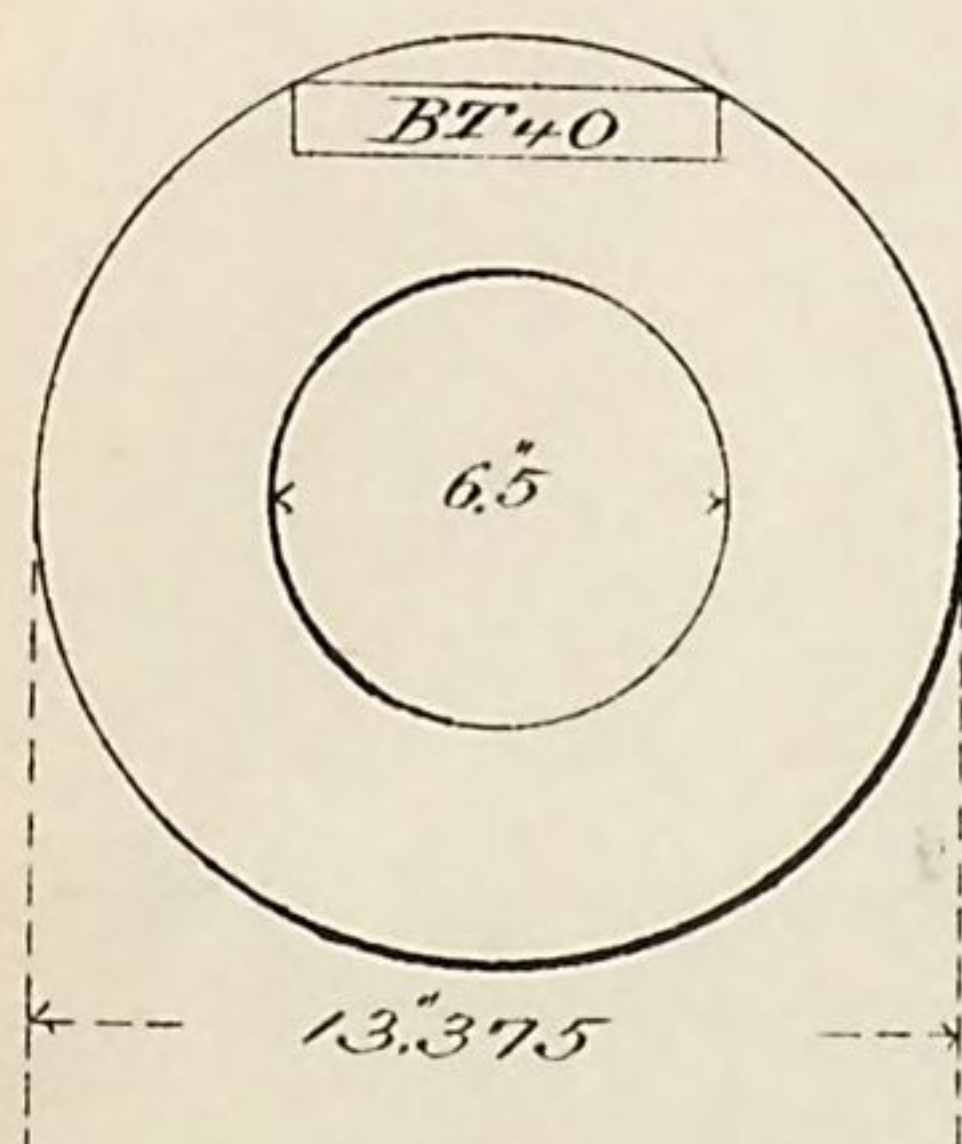
Additional specimens



H Ex 31 40 S

Tube No. 26 8" converted Rifle

Additional specimens



H Ex 3 / 49 2

No. 1161.

Marks, $\frac{8}{B} \frac{T_{26}}{T_4 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds:</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
10,000	40,000	.001233	.000166	0.	.....	Elastic limit.
10,250	41,000	.001400	.000167	.....	.....	
10,500	42,000	.003733	.002333	.....	.....	
10,750	43,000	.004667	.000934	.....	.....	
11,000	44,000	.005833	.001166	.....	.....	
11,250	45,000	.007067	.001234	.005433	.005433	
11,500	46,000	.008000	.000933	.....	.....	
11,750	47,000	.008700	.000700	.....	.....	
12,000	48,000	.009800	.001100	.....	.....	
12,250	49,000	.010833	.001033	.....	.....	
12,500	50,000	.012167	.001334	.010300	.004867	
12,750	51,000	.012800	.000633	.....	.....	
13,000	52,000	.013833	.001033	.....	.....	
13,250	53,000	.015367	.001534	.....	.....	
13,500	54,000	.016767	.001400	.....	.....	
13,750	55,000	.018167	.001400	.....	.....	
14,000	56,000	.019667	.001500	.....	.....	
14,250	57,000	.020833	.001166	.....	.....	
14,500	58,000	.021867	.001034	.....	.....	
14,750	59,000	.023733	.001866	.....	.....	
15,000	60,000	.025400	.001667	.....	.....	
15,500	62,000	.028900	.003500	.....	.....	
16,000	64,000	.032833	.003933	.....	.....	
16,500	66,000	.037500	.004667	.....	.....	
17,000	68,000	.042500	.005000	.....	.....	
17,500	70,000	.048667	.006167	.....	.....	
18,000	72,000	.056167	.007500	.....	.....	
18,500	74,000	.071500	.015333	.....	.....	
19,000	76,000	.0867	.0152	.....	.....	
19,250	77,000	.....	.....	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	77,000
Elastic limit per square inch of original section	do...	40,000
Elongation per inch after rupture	inch..	0.1067
Elongation per inch under strain at elastic limit	do...	.001233
Reduction in diameter at point of rupture	do...	.044
Reduction in area after rupture, per centum of original section		15.0
Position of rupture	".85 from neck	
Character of broken surface	granular; dull colored metal at the circumference	
Elongation of inch sections	".14", ".10" .08	

No. 1162.

Marks, $\frac{8}{M} T_{26}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	.000033	.000033	
2,500	10,000	.000367	.000200	.000067	.000034	
3,750	15,000	.000567	.000200	.000100	.000033	
5,000	20,000	.000733	.000166	.000100	0.	
6,250	25,000	.000833	.000100	.000100	0.	
7,500	30,000	.000933	.000100	.000100	0.	
8,750	35,000	.001100	.000167	.000100	0.	
10,000	40,000	.001200	.000100	.000100	0.	
10,250	41,000	.001267	.000067	.....	.....	
10,500	42,000	.001333	.000066	.....	.....	
10,750	43,000	.001367	.000034	.....	.....	
11,000	44,000	.001400	.000033	.....	.....	
11,250	45,000	.001400	0.	.000100	0.	Elastic limit.
11,500	46,000	.001667	.000267	.....	.....	
11,750	47,000	.001833	.000166	.....	.....	
12,000	48,000	.002333	.000500	.....	.....	
12,250	49,000	.003900	.001567	.....	.....	
12,500	50,000	.005200	.001300	.003567	.003467	
12,750	51,000	.006000	.000800	.....	.....	
13,000	52,000	.006933	.000933	.....	.....	
13,250	53,000	.008033	.001100	.....	.....	
13,500	54,000	.009067	.001034	.....	.....	
13,750	55,000	.010200	.901133	.....	.....	
14,000	56,000	.011167	.000967	.....	.....	
14,250	57,000	.012200	.001033	.....	.....	
14,500	58,000	.013333	.001133	.....	.....	
14,750	59,000	.014667	.001334	.....	.....	
15,000	60,000	.015933	.001266			Tensile strength.
15,500	62,000	.018100	.002167	.....	.....	
16,000	64,000	.020500	.002400	.....	.....	
16,500	66,000	.023333	.002833	.....	.....	
17,000	68,000	.026367	.003034	.....	.....	
17,500	70,000	.029667	.003300	.....	.....	
18,000	72,000	.033333	.003666	.....	.....	
18,500	74,000	.038000	.004667	.....	.....	
19,000	76,000	.043167	.005167	.....	.....	
19,500	78,000	.049000	.005833	.....	.....	
20,000	80,000	.058500	.009500	.....	.....	
20,500	82,000	.0700	.0115	.....	.....	
21,000	84,000	.0933	.0233	.....	.....	
21,190	84,760	.1400	.0467	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	84,760
Elastic limit per square inch of original section.....	do...	45,000
Elongation per inch after rupture.....	inch..	0.2233
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	1 inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".38", ".18", ".11	

NEW TUBE No. 26.

No. 2359.

Marks, $\frac{8}{B} \frac{T_{26}}{T_5 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000633	.000200	0.	.....	
6,250	25,000	.050833	.000200	0.	.....	
7,500	30,000	.000933	.000100	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
10,000	40,000	.001267	.000167	0.	.....	
10,250	41,000	.001300	.000033			Elastic limit.
10,500	42,000	.009333	.008033	.....	.....	
10,750	43,000	.011000	.001667	.....	.....	
11,000	44,000	.014067	.003067	.....	.....	
11,250	45,000	.015000	.000933	.....	.....	
11,500	46,000	.016900	.005400	.....	.....	
11,750	47,000	.017567	.000667	.....	.....	
12,000	48,000	.019367	.001800	.....	.....	
12,250	49,000	.021333	.001966	.....	.....	
12,500	50,000	.023333	.002000	.....	.....	
13,000	52,000	.027333	.004000	.....	.....	
13,500	54,000	.031667	.004334	.....	.....	
14,000	56,000	.037833	.006166	.....	.....	
14,500	58,000	.044000	.006167	.....	.....	
15,000	60,000	.051167	.007167	.....	.....	
15,500	62,000	.061333	.010166	.....	.....	
16,000	64,000	.0732	.011967	.....	.....	
16,500	66,000	.0933	.0200	.....	.....	
17,000	68,000	.1267	.0334	.....	.....	
17,160	68,640	.1733	.0466			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	68,640
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.2800
Elongation per inch under strain at elastic limit.....	do...	.001300
Reduction in diameter at point of rupture.....	do...	.234
Reduction in area after rupture, per centum of original section.....		65.8
Position of rupture.....	1 inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".14, ".20, ".50*	

No. 2360.

Marks, $\frac{8}{B} \frac{T_{26}}{T_6 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000467	.000200	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
10,000	40,000	.001300	.000167	0.	.....	
10,250	41,000	.001367	.000067	0.	.....	Elastic limit.
10,500	42,000	.013167	.011800	.....	.....	
10,750	43,000	.013733	.000566	.....	.....	
11,000	44,000	.015167	.001434	.....	.....	
11,250	45,000	.016533	.001366	.....	.....	
11,500	46,000	.018333	.001800	.....	.....	
11,750	47,000	.019667	.001334	.....	.....	
12,000	48,000	.021167	.001500	.....	.....	
12,250	49,000	.023033	.001866	.....	.....	
12,500	50,000	.024833	.001800	.....	.....	
13,000	52,000	.028667	.003834	.....	.....	
13,500	54,000	.033667	.005000	.....	.....	
14,000	56,000	.038333	.004666	.....	.....	
14,500	58,000	.045333	.007000	.....	.....	
15,000	60,000	.052267	.006934	.....	.....	
15,500	62,000	.062167	.009900	.....	.....	
16,000	64,000	.0733	.011133	.....	.....	
16,500	66,000	.0933	.0200	.....	.....	
17,000	68,000	.1233	.0300	.....	.....	
17,300	69,200	.1800	.0567	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	69,200
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.2967
Elongation per inch under strain at elastic limit.....	do...	.001367
Reduction in diameter at point of rupture.....	do...	.204
Reduction in area after rupture, per centum of original section.....	do...	59.3
Position of rupture.....	1".5 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".15, ".50*, ".24	

No. 2361.

Marks, $\begin{smallmatrix} 8 T_{26} \\ B T_7 M \end{smallmatrix}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,500	38,000	.001233	.000100			Elastic limit.
9,750	39,000	.001300	.000067	.....	.....	
10,000	40,000	.008333	.007033	.....	.....	
10,250	41,000	.008667	.000334	.....	.....	
10,500	42,000	.009667	.001000	.....	.....	
10,750	43,000	.011000	.001333	.....	.....	
11,000	44,000	.012500	.001500	.....	.....	
11,250	45,000	.014000	.001500	.....	.....	
11,500	46,000	.015667	.001667	.....	.....	
11,750	47,000	.017000	.001333	.....	.....	
12,000	48,000	.018333	.001333	.....	.....	
12,250	49,000	.019667	.001334	.....	.....	
12,500	50,000	.021333	.001666	.....	.....	
13,000	52,000	.025667	.004334	.....	.....	
13,500	54,000	.030667	.005000	.....	.....	
14,000	56,000	.034333	.003666	.....	.....	
14,500	58,000	.040000	.005667	.....	.....	
15,000	60,000	.046667	.006667	.....	.....	
15,500	62,000	.055000	.008333	.....	.....	
16,000	64,000	.0667	.0117	.....	.....	
16,500	66,000	.0800	.0133	.....	.....	
17,000	68,000	.1033	.0233	.....	.....	
17,480	69,920	.1867	.0834			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	69,920
Elastic limit per square inch of original section.....	do...	38,000
Elongation per inch after rupture.....	inch..	0.3033
Elongation per inch under strain at elastic limit.....	do...	.001233
Reduction in diameter at point of rupture.....	do...	.225
Reduction in area after rupture, per centum of original section.....		63.7
Position of rupture.....	1".63 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".22, ".52*, ".17	

No. 2362.

Marks, $\frac{8 T_{26}}{M T_5 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.000967	.000134	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
10,000	40,000	.001267	.000134	0.	.....	
10,250	41,000	.001300	.000033			Elastic limit.
10,500	42,000	.002667	.001367	.....	.....	
10,750	43,000	.005400	.002733	.....	.....	
11,000	44,000	.008000	.002600	.....	.....	
11,250	45,000	.008667	.000667	.....	.....	
11,500	46,000	.009900	.001233	.....	.....	
11,750	47,000	.011000	.001100	.....	.....	
12,000	48,000	.012333	.001333	.....	.....	
12,250	49,000	.013333	.001000	.....	.....	
12,500	50,000	.014667	.001334	.....	.....	
13,000	52,000	.017500	.002833	.....	.....	
13,500	54,000	.020667	.003167	.....	.....	
14,000	56,000	.024167	.003500	.....	.....	
14,500	58,000	.027000	.002833	.....	.....	
15,000	60,000	.031000	.004000	.....	.....	
15,500	62,000	.035667	.004667	.....	.....	
16,000	64,000	.040667	.005000	.....	.....	
16,500	66,000	.046500	.005833	.....	.....	
17,000	68,000	.054000	.007500	.....	.....	
17,500	70,000	.063333	.009333	.....	.....	
18,000	72,000	.0767	.013367	.....	.....	
18,500	74,000	.1033	.0266			Tensile strength.
18,850	75,400	.1600	.0567	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	75,400
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.2467
Elongation per inch under strain at elastic limit.....	do...	.001300
Reduction in diameter at point of rupture.....	do...	.184
Reduction in area after rupture, per centum of original section.....		54.6
Position of rupture.....	".90 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".44*, ".16, ".14	

No. 2363.

Marks, $\frac{8}{M} \frac{T_{26}}{T_6 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000200	.000100	0.	.....	
3,750	15,000	.000333	.000133	0.	.....	
5,000	20,000	.000567	.000234	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001033	.000133	0.	.....	
10,000	40,000	{ .001267 .003833 }	{ .000234 .002566 }	.000067	.000067	Elastic limit.
10,250	41,000					
10,500	42,000	.005267	.001434	.....	.....	
10,750	43,000	.007333	.002066	.....	.....	
10,750	43,000	.008164	.000834	.....	.....	
11,000	44,000	.009333	.001166	.....	.....	
11,250	45,000	.010133	.000800	.....	.....	
11,500	46,000	.011500	.001367	.....	.....	
11,750	47,000	.012700	.001200	.....	.....	
12,000	48,000	.014000	.001300	.....	.....	
12,250	49,000	.015000	.001000	.....	.....	
12,500	50,000	.017060	.002000	.....	.....	
13,000	52,000	.019667	.002667	.....	.....	
13,500	54,000	.023000	.003333	.....	.....	
14,000	56,000	.026367	.003367	.....	.....	
14,500	58,000	.029933	.003566	.....	.....	
15,000	60,000	.034000	.004067	.....	.....	
15,500	62,000	.039167	.005167	.....	.....	
16,000	64,000	.045000	.005833	.....	.....	
16,500	66,000	.052167	.007167	.....	.....	
17,000	68,000	.060000	.007833	.....	.....	
17,500	70,000	.0767	.0167	.....	.....	
18,000	72,000	.0933	.0166	.....	.....	
18,500	74,000	.1567	.0634			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	74,000
Elastic limit per square inch of original section.....	do...	40,000
Elongation per inch after rupture.....	inch..	0.2367
Elongation per inch under strain at elastic limit.....	do...	.001267
Reduction in diameter at point of rupture.....	do...	.174
Reduction in area after rupture, per centum of original section.....		52.2
Position of rupture.....	1".5 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".11, ".32*, ".28	

No. 2364.

Marks, $\frac{8}{M} T_{26}$ Diameter, $\frac{11}{16}$ inch.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000600	.000200	0.	.....	
6,250	25,000	.000800	.000200	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001067	.000100	0.	.....	
10,000	40,000	.001200	.000133	0.	.....	
10,250	41,000	.001367	.000167			Elastic limit.
10,500	42,000	.001467	.000100	.....	.....	
10,750	43,000	.004367	.002900	.....	.....	
11,000	44,000	.006400	.002033	.....	.....	
11,250	45,000	.007367	.000967	.....	.....	
11,500	46,000	.008500	.001133	.....	.....	
11,750	47,000	.009667	.001167	.....	.....	
12,000	48,000	.010800	.001133	.....	.....	
12,250	49,000	.012000	.001200	.....	.....	
12,500	50,000	.013333	.001333	.....	.....	
13,000	52,000	.015667	.002334	.....	.....	
13,500	54,000	.018833	.003166	.....	.....	
14,000	56,000	.021667	.002834	.....	.....	
14,500	58,000	.025133	.003466	.....	.....	
15,000	60,000	.029000	.003867	.....	.....	
15,500	62,000	.033000	.004000	.....	.....	
16,000	64,000	.038000	.005000	.....	.....	
16,500	66,000	.042667	.004667	.....	.....	
17,000	68,000	.050000	.007333	.....	.....	
17,500	70,000	.058333	.008333	.....	.....	
18,000	72,000	.070000	.011667	.....	.....	
18,500	74,000	.0900	.0200	.....	.....	
19,000	76,000	.1333	.0433	.....	.....	
19,050	76,200	.1667	.0334			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	76,200
Elastic limit per square inch of original section	do...	40,000
Elongation per inch after rupture	inch..	0.2567
Elongation per inch under strain at elastic limit	do...	.001200
Reduction in diameter at point of rupture	do...	.164
Reduction in area after rupture, per centum of original section		49.7
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections	" .40", ".21", ".16	

Uterine Fibroids & Cervical Erosion

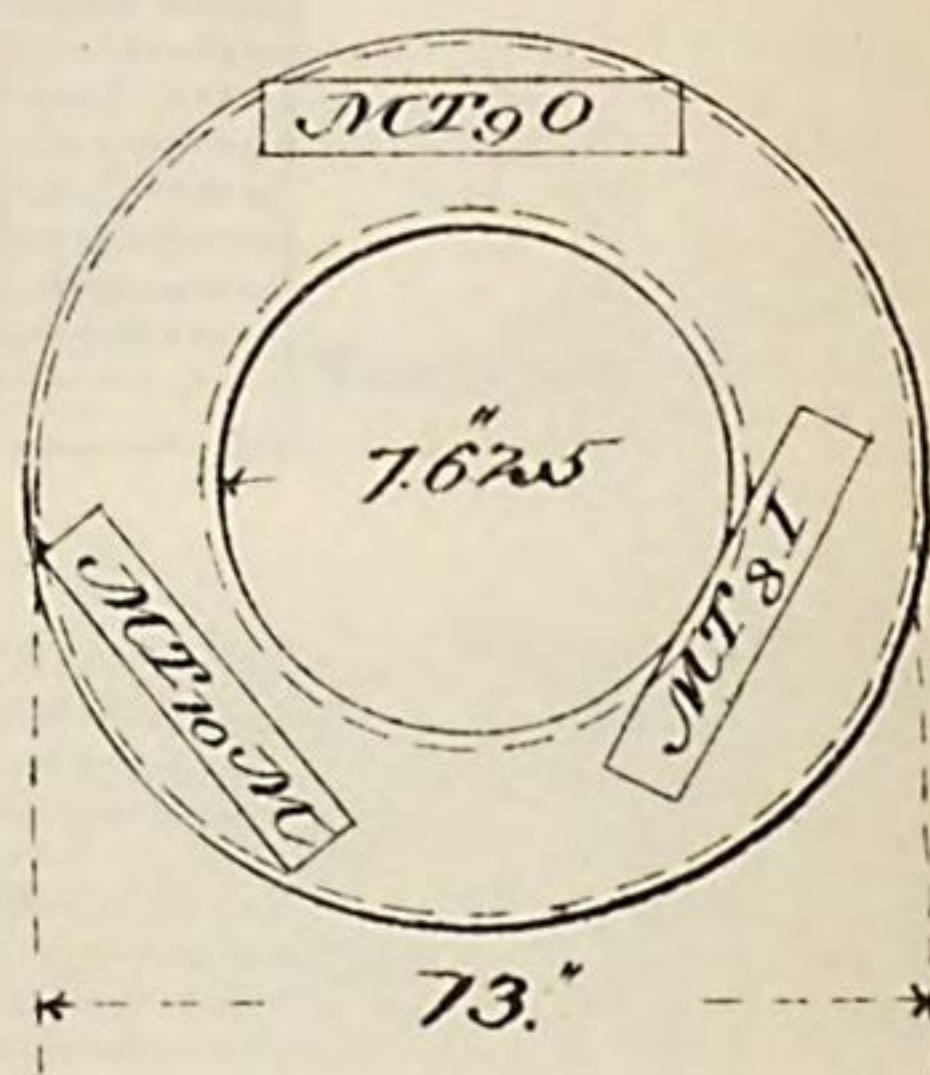
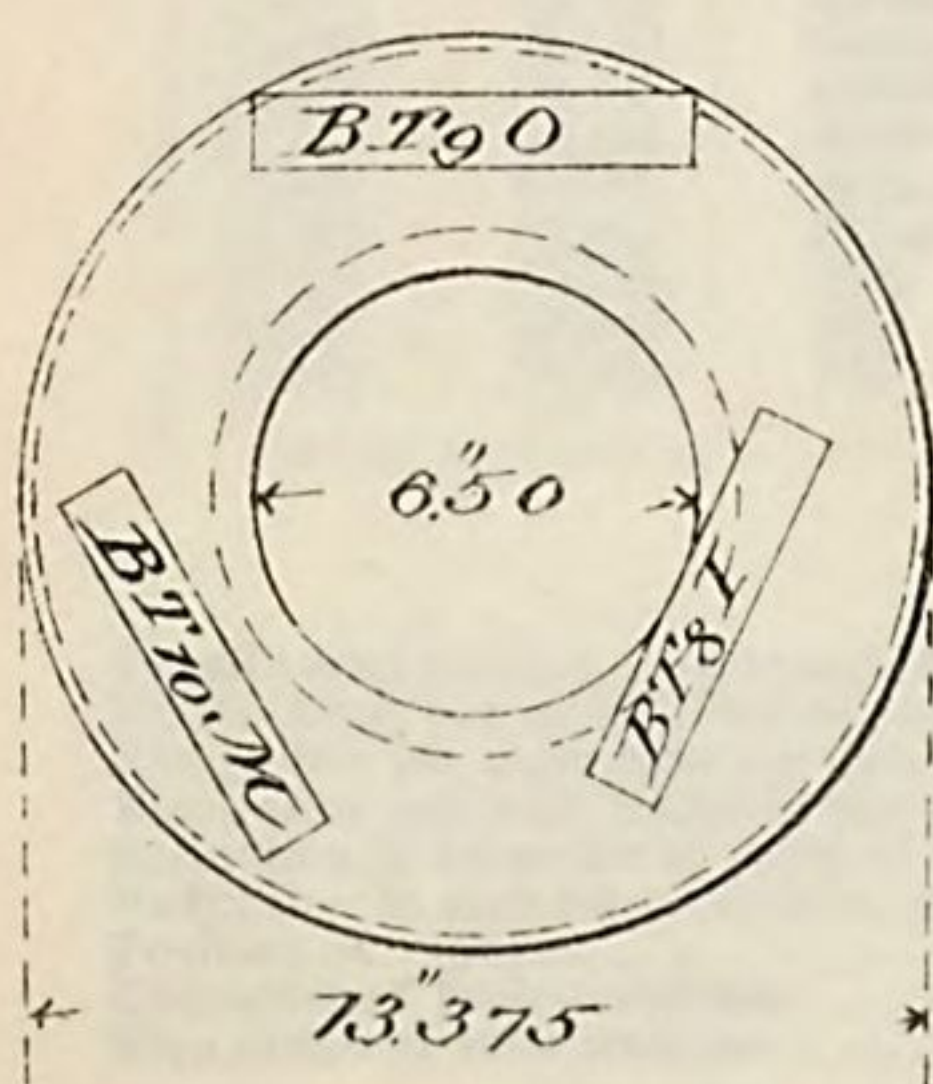
Additional Specimens



H. Ex. 31. 402

New Tube No. 26 8" converted Rifle

Additional specimens



H Ex 31 49 2

No. 2594.

Marks, $\frac{8}{B} \frac{T_{26}}{T_8 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000232	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000600	.000200	0.	.....	
6,250	25,000	.000800	.000200	0.	.....	
7,500	30,000	.000933	.000133	0.	.....	
8,750	35,000	.001100	.000167	.....	.....	
10,000	40,000	.001267	.000167	.....	.....	
10,250	41,000	.001333	.000066			Elastic limit.
10,500	42,000	.001400	.000067	.....	.....	
10,750	43,000	.001467	.000067	.....	.....	
11,000	44,000	.007500	.006033	.....	.....	
11,250	45,000	.008667	.001167	.....	.....	
11,500	46,000	.009833	.001166	.....	.....	
11,750	47,000	.011367	.001534	.....	.....	
12,000	48,000	.012333	.000966	.....	.....	
12,250	49,000	.013667	.001334	.....	.....	
12,500	50,000	.014833	.001166	.....	.....	
13,000	52,000	.017500	.002667	.....	.....	
13,500	54,000	.020400	.002900	.....	.....	
14,000	56,000	.023333	.002933	.....	.....	
14,500	58,000	.027067	.003734	.....	.....	
15,000	60,000	.031333	.004266	.....	.....	
15,500	62,000	.036667	.005334			Tensile strength.
16,000	64,000	.039733	.003066	.....	.....	
16,500	66,000	.0500	.010267	.....	.....	
17,000	68,000	.0600	.0100	.....	.....	
17,500	70,000	.0667	.0067	.....	.....	
18,000	72,000	.0733	.0066	.....	.....	
18,500	74,000	.0933	.0200	.....	.....	
19,000	76,000	.1333	.0400	.....	.....	
19,050	76,200	.1633	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	76,200
Elastic limit per square inch of original section.....	do....	43,000
Elongation per inch after rupture.....	inch..	0.2433
Elongation per inch under strain at elastic limit.....	do....	.001467
Reduction in diameter at point of rupture.....	do....	.194
Reduction in area after rupture, per centum of original section.....		57.0
Position of rupture.....	1".20 from neck	
Character of broken surface.....	fine, silky	
Elongation of inch sections.....	".35*, ".28, ".12	

No. 2595.

Marks, $\frac{8}{B} \frac{T_{26}}{T_9 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
10,000	40,000	.001267	.000167	.....	.....	
10,250	41,000	.001333	.000066			Elastic limit.
10,500	42,000	.001400	.000067	.....	.....	
10,750	43,000	.001467	.000067	.....	.....	
11,000	44,000	.001667	.000200	.....	.....	
11,250	45,000	.008200	.006533	.....	.....	
11,500	46,000	.009567	.001367	.....	.....	
11,750	47,000	.010067	.000500	.....	.....	
12,000	48,000	.011500	.001433	.....	.....	
12,250	49,000	.012667	.001167	.....	.....	
12,500	50,000	.014367	.001700	.....	.....	
13,000	52,000	.016533	.002166	.....	.....	
13,500	54,000	.019000	.002467	.....	.....	
14,000	56,000	.022500	.003500	.....	.....	
14,500	58,000	.025333	.002833	.....	.....	
15,000	60,000	.029167	.003834	.....	.....	
15,500	62,000	.033333	.004166			Tensile strength.
16,000	64,000	.036667	.003334	.....	.....	
16,500	66,000	.042067	.005400	.....	.....	
17,000	68,000	.0500	.007933	.....	.....	
17,500	70,000	.0567	.0067	.....	.....	
18,000	72,000	.0667	.0100			
18,500	74,000	.0767	.0100			
19,000	76,000	.1000	.0233			
19,450	77,800	.1633	.0633			

General summary.

Tensile strength per square inch of original section	pounds..	77,800
Elastic limit, per square inch of original section	do ..	43,000
Elongation per inch after rupture	inch..	0.2633
Elongation per inch under strain at elastic limit	do...	.001467
Reduction in diameter at point of rupture	do...	.204
Reduction in area after rupture, per centum of original section		59.3
Position of rupture	".05 from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".15, ".47*, ".17	

No. 2596.

Marks, $\frac{8}{B} \frac{T_{26}}{T_{10}} M$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
200	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000533	.000233	0.	.....	
5,000	20,000	.000700	.000167	0.	.....	
6,250	25,000	.000900	.000200	0.	.....	
7,500	30,000	.001033	.000133	0.	.....	
8,750	35,000	.001200	.000167	0.	.....	
10,000	40,000	.001367	.000167	.....	.....	
10,250	41,000	.001467	.000100			Elastic limit.
10,500	42,000	.001533	.000066	.....	.....	
10,750	43,000	.001667	.000134	.....	.....	
11,000	44,000	.007333	.005666	.....	.....	
11,250	45,000	.008700	.001367	.....	.....	
11,500	46,000	.009667	.000967	.....	.....	
11,750	47,000	.010400	.000733	.....	.....	
12,000	48,000	.011433	.001033	.....	.....	
12,250	49,000	.012367	.000934	.....	.....	
12,500	50,000	.013567	.001200	.....	.....	
13,000	52,000	.016000	.002433	.....	.....	
13,500	54,000	.019333	.003333	.....	.....	
14,000	56,000	.022500	.003167	.....	.....	
14,500	58,000	.025067	.002567	.....	.....	
15,000	60,000	.028167	.003100	.....	.....	
15,500	62,000	.032667	.004500			Tensile strength.
16,000	64,000	.037667	.005000	.....	.....	
16,500	66,000	.042667	.005000	.....	.....	
17,000	68,000	.047500	.004833	.....	.....	
17,500	70,000	.0567	.0092	.....	.....	
18,000	72,000	.0667	.0100	.....	.....	
18,500	74,000	.0767	.0100	.....	.....	
19,000	76,000	.0933	.0166	.....	.....	
19,500	78,000	.1567	.0634	.....	.....	
19,520	78,080	.1733	.0166	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	78,080
Elastic limit per square inch of original section	do...	42,000
Elongation per inch after rupture	inch..	0.2700
Elongation per inch under strain at elastic limit	do...	.001533
Reduction in diameter at point of rupture	do...	.194
Reduction in area after rupture, per centum of original section		37.0
Position of rupture	at middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".17, ".47*, ".17	

H. Ex. 31—46

No. 2597.

Marks, $\frac{8}{M} \frac{T_{26}}{T_{81}}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000633	.000200	0.	.....	
6,250	25,000	.000767	.000134	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001110	.000167	0.	.....	
10,000	40,000	.001233	.000133	.....	.....	
10,250	41,000	.001300	.000067			Elastic limit.
10,500	42,000	.001367	.000067	.....	.....	
10,750	43,000	.001400	.000033	.....	.....	
11,000	44,000	.001433	.000033	.....	.....	
11,250	45,000	.001632	.000200	.....	.....	
11,500	46,000	.002100	.000467	.....	.....	
11,750	47,000	.002767	.000667	.....	.....	
12,000	48,000	.003900	.001133	.....	.....	
12,250	49,000	.005064	.001167	.....	.....	
12,500	50,000	.006667	.001600			Tensile strength.
13,000	52,000	.008833	.002166	.....	.....	
13,500	54,000	.011000	.002167	.....	.....	
14,000	56,000	.013033	.002033	.....	.....	
14,500	58,000	.015667	.002634	.....	.....	
15,000	60,000	.018000	.002333	.....	.....	
15,500	62,000	.021167	.003167	.....	.....	
16,000	64,000	.024333	.003166	.....	.....	
16,500	66,000	.026833	.002500	.....	.....	
17,000	68,000	.030667	.003834	.....	.....	
17,500	70,000	.034500	.003833	.....	.....	
18,000	72,000	.038000	.003500	.....	.....	
18,500	74,000	.043100	.005100	.....	.....	
19,000	76,000	.0533	.0102	.....	.....	
19,500	78,000	.0633	.0100	.....	.....	
20,000	80,000	.0700	.0067	.....	.....	
20,500	82,000	.0867	.0167	.....	.....	
20,900	83,600	.1267	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	83,600
Elastic limit per square inch of original section.....	do...	44,000
Elongation per inch after rupture.....	inch..	0.1867
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	".95 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".32*, ".13, ".11	

No. 2598.

Marks, $\frac{8}{M} T_{26}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.		
2,500	10,000	.000333	.000166	0.		
3,750	15,000	.000533	.000200	0.		
5,000	20,000	.000700	.000167	0.		
6,250	25,000	.000867	.000167	0.		
7,500	30,000	.001033	.000166	0.		
8,750	35,000	.001233	.000200	0.		
10,000	40,000	.001433	.000200			
10,250	41,000	.001500	.000067			Elastic limit.
10,500	42,000	.001567	.000067	.....	.....	
10,750	43,000	.002167	.000600	.....	.....	
11,000	44,000	.003733	.001566	.....	.....	
11,250	45,000	.005400	.001667	.....	.....	
11,500	46,000	.006567	.001167	.....	.....	
11,750	47,000	.007333	.000766	.....	.....	
12,000	48,000	.008500	.001167	.....	.....	
12,250	49,000	.009000	.000500	.....	.....	
12,500	50,000	.010333	.001333	.....	.....	
13,000	52,000	.012500	.002167	.....	.....	
13,500	54,000	.015167	.002667	.....	.....	
14,000	56,000	.017333	.002166	.....	.....	
14,500	58,000	.019667	.002334	.....	.....	
15,000	60,000	.022667	.003000	.....	.....	
15,500	62,000	.026000	.003333	.....	.....	
16,000	64,000	.029000	.003000	.....	.....	
16,500	66,000	.032333	.003333	.....	.....	
17,000	68,000	.036500	.004167	.....	.....	
17,500	70,000	.040833	.004333	.....	.....	
18,000	72,000	.0467	.005867	.....	.....	
18,500	74,000	.0533	.0066	.....	.....	
19,000	76,000	.0633	.0100	.....	.....	
19,500	78,000	.0733	.0100	.....	.....	
20,000	80,000	.0900	.0167			Tensile strength.
20,440	81,760	.1367	.0467	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	81,760
Elastic limit per square inch of original section	do...	42,000
Elongation per inch after rupture	inch..	0.2233
Elongation per inch under strain at elastic limit	do...	.001567
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	at middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".11, ".42*, ".14	

No. 2599.

Marks, $\frac{8}{M} T_{26}$
Diameter, $\frac{10}{M}$.564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	-----	
2,500	10,000	.000233	.000133	0.	-----	
3,750	15,000	.000400	.000167	0.	-----	
5,000	20,000	.000500	.000100	0.	-----	
6,250	25,000	.000667	.000167	0.	-----	
7,500	30,000	.000867	.000200	0.	-----	
8,750	35,000	.001067	.000200	0.	-----	
10,000	40,000	.001267	.000200	-----	-----	
10,250	41,000	.001333	.000066	-----	-----	Elastic limit.
10,500	42,000	.001400	.000067	-----	-----	
10,750	43,000	.001867	.000467	-----	-----	
11,000	44,000	.002967	.001100	-----	-----	
11,250	45,000	.003733	.000766	-----	-----	
11,500	46,000	.004367	.000634	-----	-----	
11,750	47,000	.005700	.001333	-----	-----	
12,000	48,000	.006833	.001133	-----	-----	
12,250	49,000	.008200	.001367	-----	-----	
12,500	50,000	.009533	.001333	-----	-----	
13,000	52,000	.011667	.002134	-----	-----	
13,500	54,000	.014033	.002366	-----	-----	
14,000	56,000	.016333	.002300	-----	-----	
14,500	58,000	.018833	.002500	-----	-----	
15,000	60,000	.021500	.002667	-----	-----	
15,500	62,000	.024500	.003000	-----	-----	
16,000	64,000	.027667	.003167	-----	-----	
16,500	66,000	.031333	.003666	-----	-----	
17,000	68,000	.035000	.003667	-----	-----	
17,500	70,000	.039167	.004167	-----	-----	
18,000	72,000	.044667	.005500	-----	-----	
18,500	74,000	.0533	.008633	-----	-----	
19,000	76,000	.0633	.0100	-----	-----	
19,500	78,000	.0700	.0067	-----	-----	
20,000	80,000	.0933	.0233	-----	-----	Tensile strength.
20,410	81,640	.1333	.0400	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	81,640
Elastic limit per square inch of original section	do...	42,000
Elongation per inch after rupture	inch..	0.2267
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.154
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	".05 from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".11 ".38* ".19	

No. 2487.

Marks, $\frac{8 T_7}{B T_1 I}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000933	.000133	0.	.....	
8,750	35,000	.001100	.000167	.....	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034			Elastic limit.
9,500	38,000	.012133	.010966	.....	.....	
9,750	39,000	.012667	.000534	.....	.....	
10,000	40,000	.013567	.000900	.....	.....	
10,250	41,000	.014200	.000633	.....	.....	
10,500	42,000	.015567	.001367	.....	.....	
10,750	43,000	.016667	.001100	.....	.....	
11,000	44,000	.018500	.001833	.....	.....	
11,250	45,000	.019667	.001167	.....	.....	
11,500	46,000	.021600	.001933	.....	.....	
11,750	47,000	.023033	.001433			Tensile strength.
12,000	48,000	.025000	.001967	.....	.....	
12,250	49,000	.026333	.001333	.....	.....	
12,500	50,000	.028333	.002000	.....	.....	
13,000	52,000	.032500	.004167	.....	.....	
13,500	54,000	.038000	.005500	.....	.....	
14,000	56,000	.043100	.005100	.....	.....	
14,500	58,000	.049667	.006567	.....	.....	
15,000	60,000	.057500	.007833	.....	.....	
15,500	62,000	.0667	.0092	.....	.....	
16,000	64,000	.0800	.0133	.....	.....	
16,500	66,000	.0967	.0167	.....	.....	
17,000	68,000	.1333	.0366	.....	.....	
17,180	68,720	.1800	.0467	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	68,720
Elastic limit per square inch of original section.....	do...	37,000
Elongation per inch after rupture.....	inch..	0.2433
Elongation per inch under strain at elastic limit.....	do...	.001167
Reduction in diameter at point of rupture.....	do..	.085
Reduction in area after rupture, per centum of original section.....		27.6
Position of rupture.....		1".24 from neck
Character of broken surface, granular; flaky spot at circumference; opened numerous cracks in surface of stem.		
Elongation of inch sections.....		".22, ".31*, ".20

No. 2488.

Marks, $\frac{8}{B} T_{27} O$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	— .000067	— .000067	
2,500	10,000	.000233	.000133	— .000067	0.	
3,750	15,000	.000367	.000134	— .000067	0.	
5,000	20,000	.000500	.000133	— .000100	— .000033	
6,250	25,000	.000667	.000167	— .000100	0.	
7,500	30,000	.000800	.000133	— .000133	— .000033	
8,750	35,000	.001000	.000200	.....	.....	
9,000	36,000	.001067	.000067	.....	.....	
9,250	37,000	.001100	.000033	.....	.....	
9,500	38,000	.001133	.000033			Elastic limit.
9,750	39,000	.001167	.000034	.....	.....	
10,000	40,000	.012333	.011166	.....	.....	
10,250	41,000	.012833	.000500	.....	.....	
10,500	42,000	.013333	.000500	.....	.....	
10,750	43,000	.014100	.000767	.....	.....	
11,000	44,000	.015667	.001567	.....	.....	
11,250	45,000	.016900	.001233	.....	.....	
11,500	46,000	.018167	.001267	.....	.....	
11,750	47,000	.019567	.001400	.....	.....	
12,000	48,000	.021000	.001433			Tensile strength.
12,250	49,000	.022167	.001167	.....	.....	
12,500	50,000	.024000	.001833	.....	.....	
13,000	52,000	.027867	.003867	.....	.....	
13,500	54,000	.031667	.003800	.....	.....	
14,000	56,000	.035667	.004000	.....	.....	
14,500	58,000	.040400	.004733	.....	.....	
15,000	60,000	.046667	.005267	.....	.....	
15,500	62,000	.052333	.005666	.....	.....	
16,000	64,000	.059667	.007334	.....	.....	
16,500	66,000	.0700	.010333	.....	.....	
17,000	68,000	.0833	.0133	.....	.....	
17,500	70,000	.1033	.0200	.....	.....	
18,000	72,000	.1600	.0567	.....	.....	
18,020	72,080	.1900	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	72,080
Elastic limit per square inch of original section	do....	39,000
Elongation per inch after rupture	inch..	0.2700
Elongation per inch under strain at elastic limit	do....	.001167
Reduction in diameter at point of rupture	do....	.164
Reduction in area after rupture, per centum of original section		49.7
Position of rupture	at middle of stem	
Character of broken surface .....	.....	silky
Elongation of inch sections .....	.....	".17, ".45*, ".19

No. 2489.

Marks, $\bar{8} T_{27}$
B T₃ M

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000700	.000200	0.	.....	
6,250	25,000	.000867	.000167	0.	.....	
7,500	30,000	.001000	.000133	.000033	.000033	
8,750	35,000	.001100	.000100	.....	.....	
9,000	36,000	.001167	.000067	.....	.....	
9,250	37,000	.001300	.000133	.....	.....	
9,500	38,000	.001333	.000033	.....	.....	
9,750	39,000	.001433	.000100	.....	.....	Elastic limit.
10,000	40,000	.008367	.006934	.....	.....	
10,250	41,000	.009000	.000633	.....	.....	
10,500	42,000	.010167	.001167	.....	.....	
10,750	43,000	.011033	.000866	.....	.....	
11,000	44,000	.012667	.001634	.....	.....	
11,250	45,000	.014000	.001333	.....	.....	
11,500	46,000	.015267	.001267	.....	.....	
11,750	47,000	.016167	.000900	.....	.....	
12,000	48,000	.017700	.001533	.....	.....	
12,250	49,000	.019000	.001300	.....	.....	
12,500	50,000	.020700	.001700	.....	.....	
13,000	52,000	.024000	.003300	.....	.....	
13,500	54,000	.027700	.003700	.....	.....	
14,000	56,000	.031400	.003700	.....	.....	
14,500	58,000	.036000	.004600	.....	.....	
15,000	60,000	.041167	.005167	.....	.....	
15,500	62,000	.046667	.005500	.....	.....	
16,00	64,000	.054000	.007333	.....	.....	
16,500	66,000	.0667	.0127	.....	.....	
17,000	68,000	.0767	.0100	.....	.....	
17,500	70,000	.1033	.0266	.....	.....	
18,000	72,000	.1600	.0567	.....	.....	
18,020	72,080	.1733	.0133	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	72,080
Elastic limit per square inch of original section	do...	39,000
Elongation per inch after rupture	inch..	0.2867
Elongation per inch under strain at elastic limit	do...	.001433
Reduction in diameter at point of rupture	do...	.184
Reduction in area after rupture, per centum of original section		54.6
Position of rupture		1".65 from neck
Character of broken surface		silky; opened cracks in surface of stem
Elongation of inch sections		".17, ".49*, ".20

No. 2490.

Marks, $\frac{8}{M T_1 I} T_{27}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.		
2,500	10,000	.000300	.000167	0.		
3,750	15,000	.000433	.000133	0.		
5,000	20,000	.000600	.000167	0.		
6,250	25,000	.000767	.000167	0.		
7,500	30,000	.000933	.000166	0.		
8,750	35,000	.001100	.000167			
9,000	36,000	.001133	.000033			
9,250	37,000	.001200	.000067			
9,500	38,000	.001233	.000033			Elastic limit.
9,750	39,000	.001300	.000067	.....	.....	
10,000	40,000	.004067	.002767	.....	.....	
10,250	41,000	.006667	.002600	.....	.....	
10,500	42,000	.008000	.001333	.....	.....	
10,750	43,000	.009000	.001000	.....	.....	
11,000	44,000	.009933	.000933	.....	.....	
11,250	45,000	.010667	.000734	.....	.....	
11,500	46,000	.012333	.001666	.....	.....	
11,750	47,000	.013333	.001000	.....	.....	
12,000	48,000	.014500	.001167	.....	.....	
12,250	49,000	.015423	.000933	.....	.....	
12,500	50,000	.017067	.001634	.....	.....	
13,000	52,000	.019733	.002666	.....	.....	
13,500	54,000	.022667	.002934	.....	.....	
14,000	56,000	.026000	.003333	.....	.....	
14,500	58,000	.029333	.003333	.....	.....	
15,000	60,000	.033167	.003834	.....	.....	
15,500	62,000	.037667	.004500	.....	.....	
16,000	64,000	.041667	.004000	.....	.....	
16,500	66,000	.049000	.007333	.....	.....	
17,000	68,000	.056333	.007333	.....	.....	
17,500	70,000	.0667	.010367	.....	.....	
18,000	72,000	.0767	.0100	.....	.....	
18,500	74,000	.1000	.0233	.....	.....	
18,880	75,520	.1433	.0433			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	75,520
Elastic limit per square inch of original section.....	do...	39,000
Elongation per inch after rupture.....	inch..	0.2300
Elongation per inch under strain at elastic limit.....	do...	.001300
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	1" .4 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".21, ".35*, ".13	

No. 2491.

Marks, $\frac{8}{M} \frac{T_{27}}{T_2 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001033	.000133	.....	.....	
9,000	36,000	.001067	.000034	.....	.....	
9,250	37,000	.001100	.000033	.....	.....	
9,500	38,000	.001133	.000033	.....	.....	
9,750	39,000	.001167	.000034	.....	.....	
10,000	40,000	.001200	.000033	.....	.....	
10,250	41,000	.001233	.000033	.....	.....	Elastic limit.
10,500	42,000	.001400	.000167	.....	.....	
10,750	43,000	.005167	.003767	.....	.....	
11,000	44,000	.006000	.000833	.....	.....	
11,250	45,000	.007333	.001333	.....	.....	
11,500	46,000	.007833	.000500	.....	.....	
11,750	47,000	.008767	.000934	.....	.....	
12,000	48,000	.010333	.001566	.....	.....	
12,250	49,000	.011667	.001334	.....	.....	
12,500	50,000	.012900	.001233	.....	.....	
13,000	52,000	.015833	.002933	.....	.....	
13,500	54,000	.017667	.001834	.....	.....	
14,000	56,000	.020733	.003066	.....	.....	
14,500	58,000	.023500	.002767	.....	.....	
15,000	60,000	.026667	.002167	.....	.....	
15,500	62,000	.030000	.003333	.....	.....	
16,000	64,000	.033833	.003833	.....	.....	
16,500	66,000	.038500	.004667	.....	.....	
17,000	68,000	.043333	.004833	.....	.....	
17,500	70,000	.050000	.006667	.....	.....	
18,000	72,000	.0600	.0100	.....	.....	
18,500	74,000	.0667	.0067	.....	.....	
19,000	76,000	.0800	.0133	.....	.....	
19,500	78,000	.1267	.0467	.....	.....	
19,780	79,120	.1667	.0400	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	79,120
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.2600
Elongation per inch under strain at elastic limit.....	do...	.001233
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....	1".45 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".16, ".42*, ".20	

No. 2492.

Marks, $^8T_{27}$
 MT_3M Diameter, $''$.564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000433	.000200	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	.....	.....	
9,000	36,000	.001200	.000100	.....	.....	
9,250	37,000	.001300	.000100	.....	.....	
9,500	38,000	.001333	.000033			Elastic limit.
9,750	39,000	.001333	0.	.....	.....	
10,000	40,000	.001367	.000034	.....	.....	
10,250	41,000	.001400	.000033	.....	.....	
10,500	42,000	.001533	.000133	.....	.....	
10,750	43,000	.001600	.000067	.....	.....	
11,000	44,000	.002500	.000900	.....	.....	
11,250	45,000	.003767	.001267	.....	.....	
11,500	46,000	.005333	.001566	.....	.....	
11,750	47,000	.007100	.001767	.....	.....	
12,000	48,000	.008833	.001733	.....	.....	
12,250	49,000	.009667	.000834	.....	.....	
12,500	50,000	.010667	.001000	.....	.....	
13,000	52,000	.013267	.002600	.....	.....	
13,500	54,000	.015200	.001933	.....	.....	
14,000	56,000	.017667	.002467	.....	.....	
14,500	58,000	.020700	.003033	.....	.....	
15,000	60,000	.023400	.002700	.....	.....	
15,500	62,000	.026567	.003167	.....	.....	
16,000	64,000	.029500	.002933	.....	.....	
16,500	66,000	.033333	.003833	.....	.....	
17,000	68,000	.037533	.004200	.....	.....	
17,500	70,000	.042400	.004867	.....	.....	
18,000	72,000	.048667	.006267	.....	.....	
18,500	74,000	.055333	.006666	.....	.....	
19,000	76,000	.0633	.007967	.....	.....	
19,500	78,000	.0800	.0167	.....	.....	
20,000	80,000	.1067	.0267	.....	.....	
20,200	80,800	.1467	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	80,800
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.2200
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.114
Reduction in area after rupture, per centum of original section.....		36.4
Position of rupture.....	".65 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".38*, ".17, ".11	

[Additional specimens.]

No. 2636.

Marks, $8 C_n R_{27} T$
B T₄ I

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000467	.000200	0.	.....	
5,000	20,000	.000600	.000133	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	.....	.....	
9,000	36,000	.001167	.000067	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001267	.000034	.....	.....	
10,000	40,000	.001300	.000033	.....	.....	
10,250	41,000	.001333	.000033	.....	.....	Elastic limit.
10,500	42,000	.001433	.000100	.....	.....	
10,750	43,000	.002333	.000900	.....	.....	
11,000	44,000	.003667	.001334	.....	.....	
11,250	45,000	.005667	.002000	.....	.....	
11,500	46,000	.007200	.001533	.....	.....	
11,750	47,000	.008167	.000967	.....	.....	
12,000	48,000	.009400	.001233	.....	.....	
12,500	50,000	.011500	.002100	.....	.....	
13,000	52,000	.013833	.002333	.....	.....	
13,500	54,000	.016533	.002700	.....	.....	
14,000	56,000	.019000	.002467	.....	.....	
14,500	58,000	.022000	.003000	.....	.....	
15,000	60,000	.025167	.003167	.....	.....	
15,500	62,000	.028933	.003766	.....	.....	
16,000	64,000	.032667	.003734	.....	.....	
16,500	66,000	.037067	.004400	.....	.....	
17,000	68,000	.042167	.005100	.....	.....	
17,500	70,000	.0500	.007833	.....	.....	
18,000	72,000	.0600	.0100	.....	.....	
18,500	74,000	.0667	.0067	.....	.....	
19,000	76,000	.0800	.0133	.....	.....	
19,500	78,000	.1200	.0400	.....	.....	
19,580	78,320	.1400	.0200	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	78,320
Elastic limit per square inch of original section.....	do...	42,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.124
Reduction in area after rupture, per centum of original section.....		39.2
Position of rupture.....	inch from neck	
Character of broken surface.....	silky ; opened cracks in surface of stem	
Elongation of inch sections.....	".12, ".15, ".33*	

No. 2637.

Marks, $\frac{8}{B} \frac{C_n}{T_5} \frac{R_{27}}{O} T$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001100	.000200	.....	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001233	.000066			Elastic limit.
9,750	39,000	.001300	.000067	.....	.....	
10,000	40,000	.001467	.000167	.....	.....	
10,250	41,000	.003733	.002266	.....	.....	
10,500	42,000	.005333	.001600	.....	.....	
10,750	43,000	.006233	.000900	.....	.....	
11,000	44,000	.007333	.001100	.....	.....	
11,250	45,000	.008233	.000900	.....	.....	
11,500	46,000	.009767	.001534	.....	.....	
12,000	48,000	.011667	.001900	.....	.....	
12,500	50,000	.014500	.002833			Tensile strength.
13,000	52,000	.017000	.002500	.....	.....	
13,500	54,000	.019167	.002167	.....	.....	
14,000	56,000	.021800	.002633	.....	.....	
14,500	58,000	.025000	.003200	.....	.....	
15,000	60,000	.028833	.003833	.....	.....	
15,500	62,000	.032667	.003834	.....	.....	
16,000	64,000	.037333	.004666	.....	.....	
16,500	66,000	.0433	.005967	.....	.....	
17,000	68,000	.0533	.0100	.....	.....	
17,500	70,000	.0600	.0067			
18,000	72,000	.0667	.0067	.....	.....	
18,500	74,000	.0767	.0100	.....	.....	
19,000	76,000	.1000	.0233	.....	.....	
19,380	77,520	.1733	.0733			

General summary.

Tensile strength per square inch of original section	pounds..	77,520
Elastic limit per square inch of original section	do ..	39,000
Elongation per inch after rupture	inch..	0.2667
Elongation per inch under strain at elastic limit	do ..	.001300
Reduction in diameter at point of rupture	do ..	.184
Reduction in area after rupture, per centum of original section		54.6
Position of rupture	1 $\frac{1}{4}$ inches from neck	
Character of broken surface	silky; opened cracks in surface of stem	
Elongation of inch sections	".28, ".36*, ".16	

No. 2638.

Marks, ^{8 Cn R₂₇ T}
_{B T₆ M}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000633	.000200	0.	.....	
6,250	25,000	.000767	.000134	0.	.....	
7,500	30,000	.000967	.000200	0.	.....	
8,750	35,000	.001133	.000166	.....	.....	
9,000	36,000	.001200	.000067	.....	.....	
9,250	37,000	.001233	.000033	.....	.....	
9,500	38,000	.001267	.000034			Elastic limit.
9,750	39,000	.001300	.000033	.....	.....	
10,000	40,000	.001367	.000067	.....	.....	
10,250	41,000	.003667	.002300	.....	.....	
10,500	42,000	.006500	.002833	.....	.....	
10,750	43,000	.007433	.000933	.....	.....	
11,000	44,000	.008467	.001034	.....	.....	
11,250	45,000	.009433	.000966	.....	.....	
11,500	46,000	.010433	.001000	.....	.....	
12,000	48,000	.012600	.002167	.....	.....	
12,500	50,000	.015200	.002600			Tensile strength.
13,000	52,000	.017833	.002633	.....	.....	
13,500	54,000	.020267	.002434	.....	.....	
14,000	56,000	.023000	.002733	.....	.....	
14,500	58,000	.026167	.003167	.....	.....	
15,000	60,000	.029567	.003400	.....	.....	
15,500	62,000	.033333	.003766	.....	.....	
16,000	64,000	.038000	.004667	.....	.....	
16,500	66,000	.0433	.0053	.....	.....	
17,000	68,000	.0500	.0067	.....	.....	
17,500	70,000	.0600	.0100	.....	.....	
18,000	72,000	.0667	.0067	.....	.....	
18,500	74,000	.0833	.0166	.....	.....	
19,000	76,000	.1067	.0234	.....	.....	
19,310	77,240	.1633	.0566	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	77,240
Elastic limit per square inch of original section.....	do...	40,000
Elongation per inch after rupture.....	inch	0.2567
Elongation per inch under strain at elastic limit.....	do...	.001367
Reduction in diameter at point of rupture.....	do...	.184
Reduction in area after rupture, per centum of original section.....		54.6
Position of rupture.....	1".50 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".19, ".42, * ".16	

No. 2639

Marks, ^{8 Cn R₂₇ T}
_{M T₄ I}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	.....	.....	
9,000	36,000	.001100	0.	.....	.....	
9,250	37,000	.001133	.000033			Elastic limit.
9,500	38,000	.001200	.000067	.....	.....	
9,750	39,000	.001267	.000067	.....	.....	
10,000	40,000	.001300	.000033	.....	.....	
10,250	41,000	.001333	.000033	.....	.....	
10,500	42,000	.001367	.000034	.....	.....	
10,750	43,000	.001433	.000066	.....	.....	
11,000	44,000	.003533	.002100	.....	.....	
11,250	45,000	.005333	.001800	.....	.....	
11,500	46,000	.006667	.001334	.....	.....	
12,000	48,000	.008933	.002266	.....	.....	
12,500	50,000	.011333	.002400	.....	.....	
13,000	52,000	.013333	.002000	.....	.....	
13,500	54,000	.015833	.002500	.....	.....	
14,000	56,000	.018333	.002500	.....	.....	
14,500	58,000	.021333	.003000			Tensile strength.
15,000	60,000	.024333	.003000	.....	.....	
15,500	62,000	.027733	.003400	.....	.....	
16,000	64,000	.031333	.003600	.....	.....	
16,500	66,000	.035500	.004167	.....	.....	
17,000	68,000	.040500	.005000	.....	.....	
17,500	70,000	.0433	.0028	.....	.....	
18,000	72,000	.0533	.0100	.....	.....	
18,500	74,000	.0667	.0134	.....	.....	
19,000	76,000	.0767	.0100	.....	.....	
19,500	78,000	.1067	.0300	.....	.....	
19,600	78,400	.1333	.0266	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	78,400
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	0.2033
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	".85 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".37*, ".14, ".10	

No. 2640.

Marks, $\frac{8}{M} \frac{Cn}{T_5} \frac{R_{27}}{O} \frac{T}{O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000833	.000200	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	.....	.....	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033	.....	.....	
9,500	38,000	.001267	.000034			Elastic limit.
9,750	39,000	.001300	.000033	.....	.....	
10,000	40,000	.001367	.000067	.....	.....	
10,250	41,000	.001400	.000033	.....	.....	
10,500	42,000	.001433	.000033	.....	.....	
10,750	43,000	.001500	.000067	.....	.....	
11,000	44,000	.001667	.000167	.....	.....	
11,250	45,000	.002333	.000666	.....	.....	
11,500	46,000	.003333	.001000	.....	.....	
11,750	47,000	.005667	.002334	.....	.....	
12,000	48,000	.007333	.001666	.....	.....	
12,250	49,000	.007900	.000567	.....	.....	
12,500	50,000	.009000	.001100	.....	.....	
13,000	52,000	.011200	.002200	.....	.....	
13,500	54,000	.013267	.002067	.....	.....	
14,000	56,000	.015333	.002066			Tensile strength.
14,500	58,000	.017833	.002500	.....	.....	
15,000	60,000	.020333	.002500	.....	.....	
15,500	62,000	.023333	.003000	.....	.....	
16,000	64,000	.026000	.002667	.....	.....	
16,500	66,000	.029667	.003667	.....	.....	
17,000	68,000	.033000	.003333	.....	.....	
17,500	70,000	.037500	.004500	.....	.....	
18,000	72,000	.0433	.0058	.....	.....	
18,500	74,000	.0500	.0067	.....	.....	
19,000	76,000	.0567	.0067	.....	.....	
19,500	78,000	.0667	.0100	.....	.....	
20,000	80,000	.0800	.0133	.....	.....	
20,500	82,000	.1067	.0267	.....	.....	
20,610	82,440	.1400	.0333	.....	.....	

General summary.

Tensile strength per square inch of original section.....pounds.. 82,440
 Elastic limit per square inch of original section.....do... 43,000
 Elongation per inch after rupture.....inch... 0.1933
 Elongation per inch under strain at elastic limit.....do... .001500
 Reduction in diameter at point of rupture.....do... .124
 Reduction in area after rupture, per centum of original section..... 39.2
 Position of rupture..... $\frac{3}{4}$ inch from neck
 Character of broken surface.....granular, 70 per centum; silky, 30 per centum
 Elongation of inch sections.....".12, ".14, ".32*

No. 2641.

Marks, ^{8 Cn R₂₇ T}
_{M T₆ M}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001133	.000200	.....	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001300	.000067	.....	.....	
10,000	40,000	.001333	.000033	.....	.....	
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.001400	.000033			Elastic limit.
10,750	43,000	.001433	.000033	.....	.....	
11,000	44,000	.001600	.000167	.....	.....	
11,250	45,000	.002200	.000600	.....	.....	
11,500	46,000	.003733	.001533	.....	.....	
11,750	47,000	.005400	.001667	.....	.....	
12,000	48,000	.006767	.001367	.....	.....	
12,250	49,000	.007667	.000900	.....	.....	
12,500	50,000	.008667	.001000	.....	.....	
13,000	52,000	.010833	.002166	.....	.....	
13,500	54,000	.013500	.002667	.....	.....	
14,000	56,000	.015500	.002000	.....	.....	
14,500	58,000	.017667	.002167	.....	.....	
15,000	60,000	.020333	.002666	.....	.....	
15,500	62,000	.023033	.002700	.....	.....	
16,000	64,000	.026000	.002967	.....	.....	
16,500	66,000	.029333	.003333	.....	.....	
17,000	68,000	.033000	.003667	.....	.....	
17,500	70,000	.037167	.004167	.....	.....	
18,000	72,000	.0433	.006133	.....	.....	
18,500	74,000	.0500	.0067	.....	.....	
19,000	76,000	.0567	.0067	.....	.....	
19,500	78,000	.0667	.0100	.....	.....	
20,000	80,000	.0833	.0166	.....	.....	
20,500	82,000	.1067	.0234	.....	.....	
20,570	82,280	.1300	.0233			Tensile strength.

General summary.

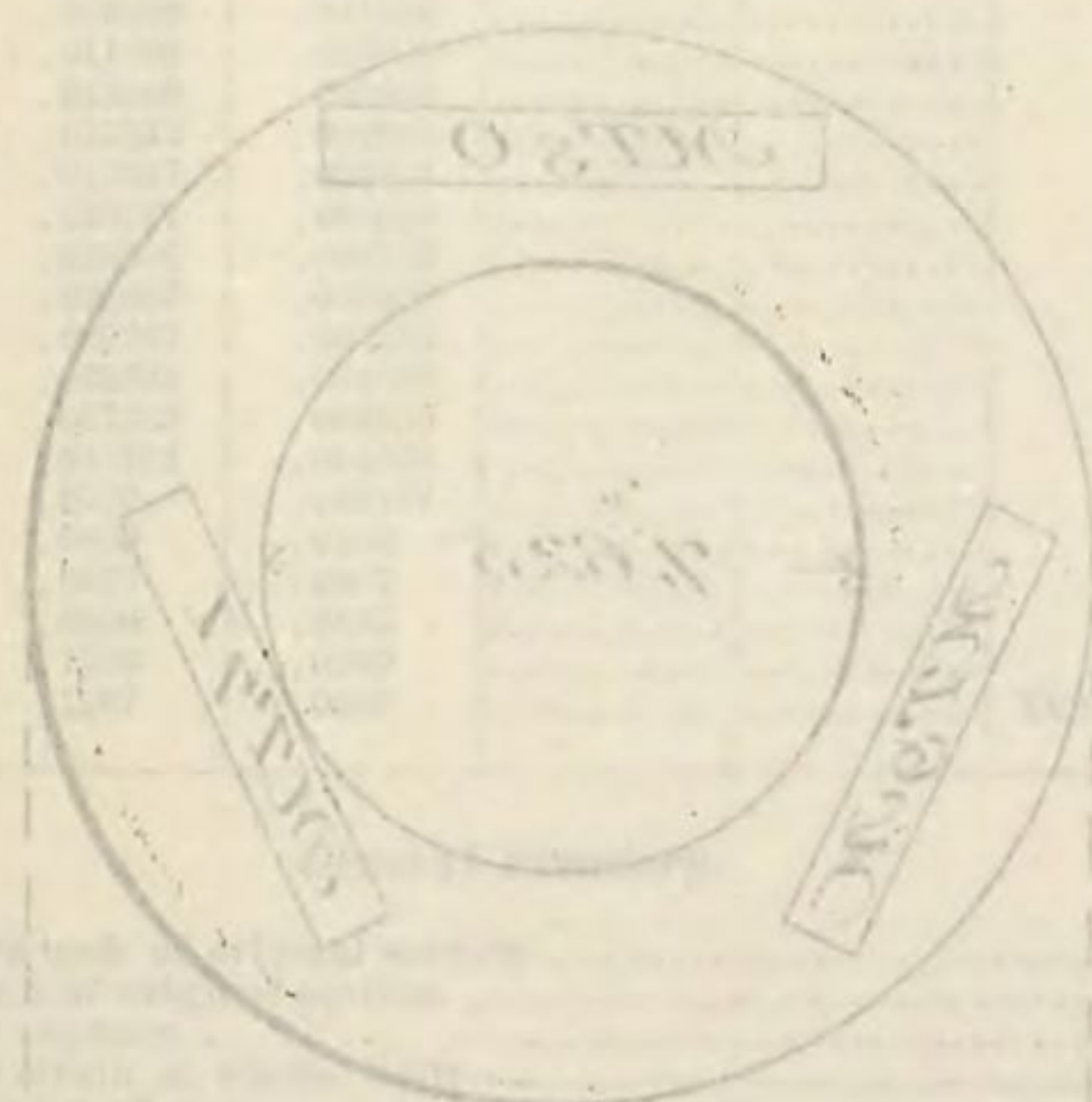
Tensile strength per square inch of original section	pounds..	82,280
Elastic limit per square inch of original section	do...	43,000
Elongation per inch after rupture	inch..	0.1500
Elongation per inch under strain at elastic limit	do...	.001433
Reduction in diameter at point of rupture	do...	.084
Reduction in area after rupture, per centum of original section		27.6
Position of rupture	"	.70 from neck
Character of broken surface, granular; dul. spot at circumference; opened cracks in surface of stem		
Elongation of inch sections	"	.21*, ".13, ".11

Nov 1892

Material, $\frac{1}{2}$ in. S
 Diameter, 1.564
 Sectional area, .25 square inch.

Table No. 27. 8' converted Kite

Feet	Per cent	Feet	Per cent	Feet	Per cent	Feet	Per cent
1.00	100	1.00	100	1.00	100	1.00	100
1.01	101	1.01	101	1.01	101	1.01	101
1.02	102	1.02	102	1.02	102	1.02	102
1.03	103	1.03	103	1.03	103	1.03	103
1.04	104	1.04	104	1.04	104	1.04	104
1.05	105	1.05	105	1.05	105	1.05	105
1.06	106	1.06	106	1.06	106	1.06	106
1.07	107	1.07	107	1.07	107	1.07	107
1.08	108	1.08	108	1.08	108	1.08	108
1.09	109	1.09	109	1.09	109	1.09	109
1.10	110	1.10	110	1.10	110	1.10	110
1.11	111	1.11	111	1.11	111	1.11	111
1.12	112	1.12	112	1.12	112	1.12	112
1.13	113	1.13	113	1.13	113	1.13	113
1.14	114	1.14	114	1.14	114	1.14	114
1.15	115	1.15	115	1.15	115	1.15	115
1.16	116	1.16	116	1.16	116	1.16	116
1.17	117	1.17	117	1.17	117	1.17	117
1.18	118	1.18	118	1.18	118	1.18	118
1.19	119	1.19	119	1.19	119	1.19	119
1.20	120	1.20	120	1.20	120	1.20	120
1.21	121	1.21	121	1.21	121	1.21	121
1.22	122	1.22	122	1.22	122	1.22	122
1.23	123	1.23	123	1.23	123	1.23	123
1.24	124	1.24	124	1.24	124	1.24	124
1.25	125	1.25	125	1.25	125	1.25	125
1.26	126	1.26	126	1.26	126	1.26	126
1.27	127	1.27	127	1.27	127	1.27	127
1.28	128	1.28	128	1.28	128	1.28	128
1.29	129	1.29	129	1.29	129	1.29	129
1.30	130	1.30	130	1.30	130	1.30	130
1.31	131	1.31	131	1.31	131	1.31	131
1.32	132	1.32	132	1.32	132	1.32	132
1.33	133	1.33	133	1.33	133	1.33	133
1.34	134	1.34	134	1.34	134	1.34	134
1.35	135	1.35	135	1.35	135	1.35	135
1.36	136	1.36	136	1.36	136	1.36	136
1.37	137	1.37	137	1.37	137	1.37	137
1.38	138	1.38	138	1.38	138	1.38	138
1.39	139	1.39	139	1.39	139	1.39	139
1.40	140	1.40	140	1.40	140	1.40	140
1.41	141	1.41	141	1.41	141	1.41	141
1.42	142	1.42	142	1.42	142	1.42	142
1.43	143	1.43	143	1.43	143	1.43	143
1.44	144	1.44	144	1.44	144	1.44	144
1.45	145	1.45	145	1.45	145	1.45	145
1.46	146	1.46	146	1.46	146	1.46	146
1.47	147	1.47	147	1.47	147	1.47	147
1.48	148	1.48	148	1.48	148	1.48	148
1.49	149	1.49	149	1.49	149	1.49	149
1.50	150	1.50	150	1.50	150	1.50	150

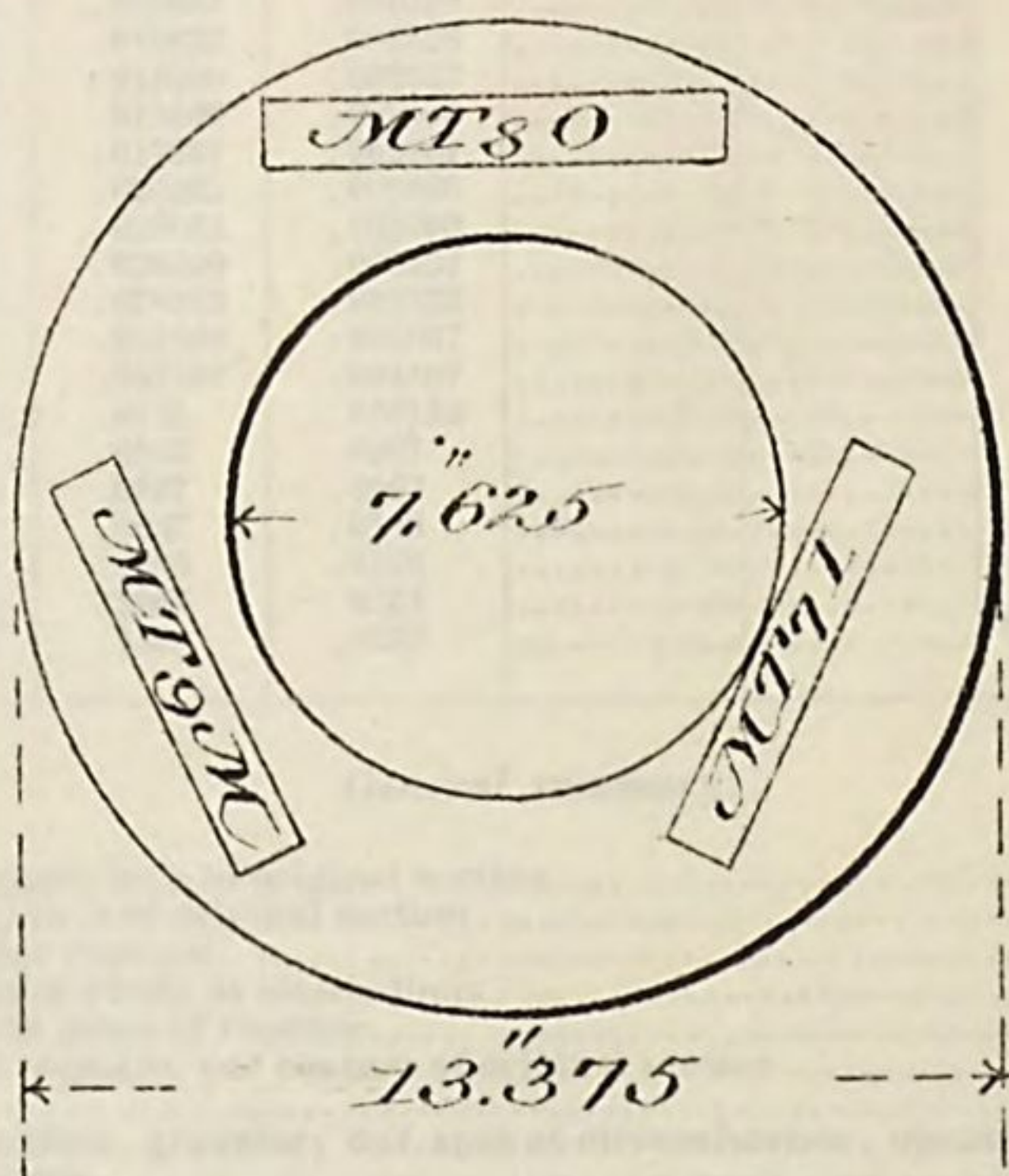


11. Ex. 31—47

H. Ex. 31—49 2

Tube No. 27 8" converted Rifle

Additional specimens



H Ex 3 / 49 2

No. 2692.

Marks, $\begin{smallmatrix} 8 & R_{27} & T \\ M & T_7 & I \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000467	.000134	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.001000	.000200	0.	.....	
8,750	35,000	.001167	.000167	.....	.....	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033	.....	.....	
9,500	38,000	.001267	.000034	.....	.....	
9,750	39,000	.001300	.000033	.....	.....	
10,000	40,000	.001333	.000033	.....	.....	
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.001433	.000066	.....	.....	Elastic limit.
10,750	43,000	.001600	.000167	.....	.....	
11,000	44,000	.001767	.000167	.....	.....	
11,250	45,000	.002533	.000766	.....	.....	
11,500	46,000	.003733	.001200	.....	.....	
11,750	47,000	.005500	.001767	.....	.....	
12,000	48,000	.007000	.001500	.....	.....	
12,250	49,000	.008000	.001000	.....	.....	
12,500	50,000	.009000	.001000	.....	.....	
13,000	52,000	.011000	.002000	.....	.....	
13,500	54,000	.013000	.002000	.....	.....	
14,000	56,000	.015233	.002233	.....	.....	
14,500	58,000	.017667	.002434	.....	.....	
15,000	60,000	.020267	.002600	.....	.....	
15,500	62,000	.023000	.002733	.....	.....	
16,000	64,000	.026000	.003000	.....	.....	
16,500	66,000	.029267	.003566	.....	.....	
17,000	68,000	.032833	.004500	.....	.....	
17,500	70,000	.037333	.004500	.....	.....	
18,000	72,000	.041833	.004500	.....	.....	
18,500	74,000	.0500	.008167	.....	.....	
19,000	76,000	.0600	.0100	.....	.....	
19,500	78,000	.0667	.0067	.....	.....	
20,000	80,000	.0800	.0133	.....	.....	
20,500	82,000	.1000	.0200	.....	.....	
20,720	82,880	.1467	.0467	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	82,880
Elastic limit per square inch of original section.....	do...	42,000
Elongation per inch after rupture.....	inch..	0.2267
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.154
Reduction in area after rupture, per centum of original section.....		47.2
Position of rupture.....	1".26 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".26*, ".29*, ".13	

H. Ex. 31—47

No. 2693.

Marks, ⁸Cn R₂₇ T
M T₈ O

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	.....	.....	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033	.....	.....	
9,500	38,000	.001300	.000067	.....	.....	
9,750	39,000	.001367	.000067	.....	.....	
10,000	40,000	.001400	.000033	.....	.....	
10,250	41,000	.001433	.000033	.....	.....	
10,500	42,000	.001500	.000067	.....	.....	
10,750	43,000	.001533	.000033	.....	.....	
11,000	44,000	.001600	.000067	.....	.....	
11,250	45,000	.001667	.000067	.....	.....	Elastic limit.
11,500	46,000	.005333	.002666	.....	.....	
11,750	47,000	.006067	.000734	.....	.....	
12,000	48,000	.007233	.001166	.....	.....	
12,250	49,000	.008167	.000934	.....	.....	
12,500	50,000	.009333	.001166	.....	.....	
13,000	52,000	.010867	.001534	.....	.....	
13,500	54,000	.013333	.002466	.....	.....	
14,000	56,000	.015833	.002500	.....	.....	
14,500	58,000	.018333	.002500	.....	.....	
15,000	60,000	.020700	.002367	.....	.....	
15,500	62,000	.023400	.002700	.....	.....	
16,000	64,000	.026333	.002933	.....	.....	
16,500	66,000	.029833	.003500	.....	.....	
17,000	68,000	.033533	.003700	.....	.....	
17,500	70,000	.038067	.004534	.....	.....	
18,000	72,000	.041667	.003600	.....	.....	
18,500	74,000	.0500	.008333	.....	.....	
19,000	76,000	.0600	.0100	.....	.....	
19,500	78,000	.0667	.0067	.....	.....	
20,000	80,000	.0833	.0166	.....	.....	
20,500	82,000	.1100	.0267	.....	.....	
20,680	82,720	.1567	.0467	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	82,720
Elastic limit per square inch of original section.....	do...	45,000
Elongation per inch after rupture.....	inch..	0.2367
Elongation per inch under strain at elastic limit.....	do...	.001667
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture	".90 from neck	
Character of broken surface	silky	
Elongation of inch sections	".38*, ".19, ".14	

No. 2694.

Marks, $\frac{8}{M} \frac{Cn}{T_9} \frac{R_{27}}{M} T$

Diameter, ".564.

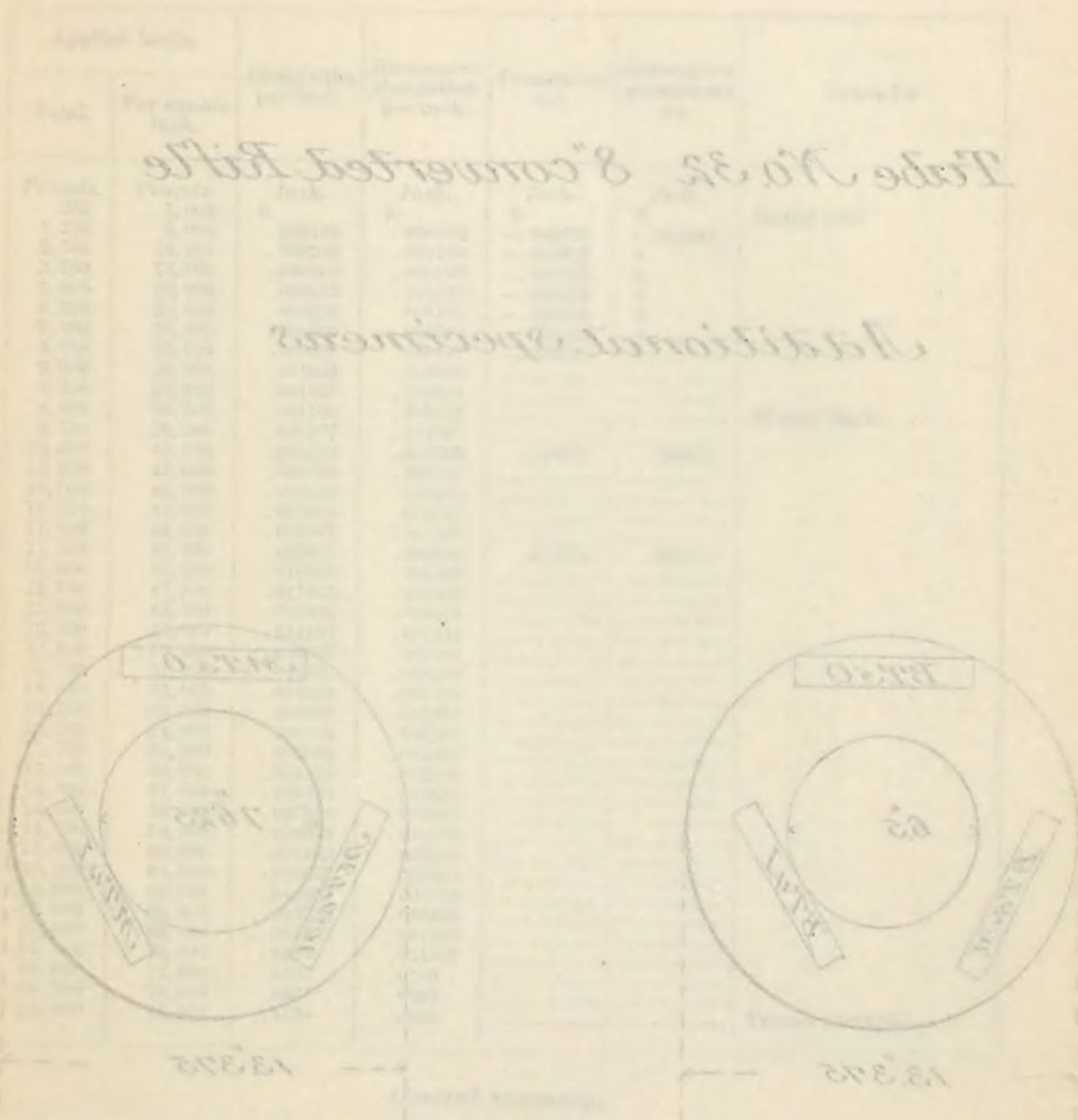
Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000533	.000200	0.	.....	
5,000	20,000	.000700	.000167	0.	.....	
6,250	25,000	.000867	.000167	0.	.....	
7,500	30,000	.001033	.000166	0.	.....	
8,750	35,000	.001200	.000167	.....	.....	
9,000	36,000	.001233	.000033	.....	.....	
9,250	37,000	.001267	.000034	.....	.....	
9,500	38,000	.001300	.000033			Elastic limit.
9,750	39,000	.001367	.000067	.....	.....	
10,000	40,000	.001400	.000033	.....	.....	
10,250	41,000	.001500	.000100	.....	.....	
10,500	42,000	.001633	.000133	.....	.....	
10,750	43,000	.002833	.001200	.....	.....	
11,000	44,000	.006000	.003167	.....	.....	
11,250	45,000	.007167	.001167	.....	.....	
11,500	46,000	.008000	.000833	.....	.....	
11,750	47,000	.008800	.000800	.....	.....	
12,000	48,000	.009833	.001033			Tensile strength.
12,250	49,000	.011000	.001167	.....	.....	
12,500	50,000	.011933	.000933	.....	.....	
13,000	52,000	.013900	.001967	.....	.....	
13,500	54,000	.016167	.002267	.....	.....	
14,000	56,000	.018667	.002500	.....	.....	
14,500	58,000	.021367	.002700	.....	.....	
15,000	60,000	.024267	.002900	.....	.....	
15,500	62,000	.027233	.002966	.....	.....	
16,000	64,000	.030933	.003700	.....	.....	
16,500	66,000	.034833	.003900	.....	.....	
17,000	68,000	.039667	.004834	.....	.....	
17,500	70,000	.044733	.005066	.....	.....	
18,000	72,000	.0533	.008567	.....	.....	
18,500	74,000	.0633	.0100	.....	.....	
19,000	76,000	.0733	.0100	.....	.....	
19,500	78,000	.0900	.0167	.....	.....	
20,000	80,000	.1300	.0400	.....	.....	
20,050	80,200	.1533	.0233	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	80,200
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.1600
Elongation per inch under strain at elastic limit.....	do...	.001500
Reduction in diameter at point of rupture.....	do...	.054
Reduction in area after rupture, per centum of original section.....		18.3
Position of rupture.....	1".50 from neck	
Character of broken surface.....	granular; radiating from a flaky spot at circumference	
Elongation of inch sections.....	".13, ".20*, ".15	

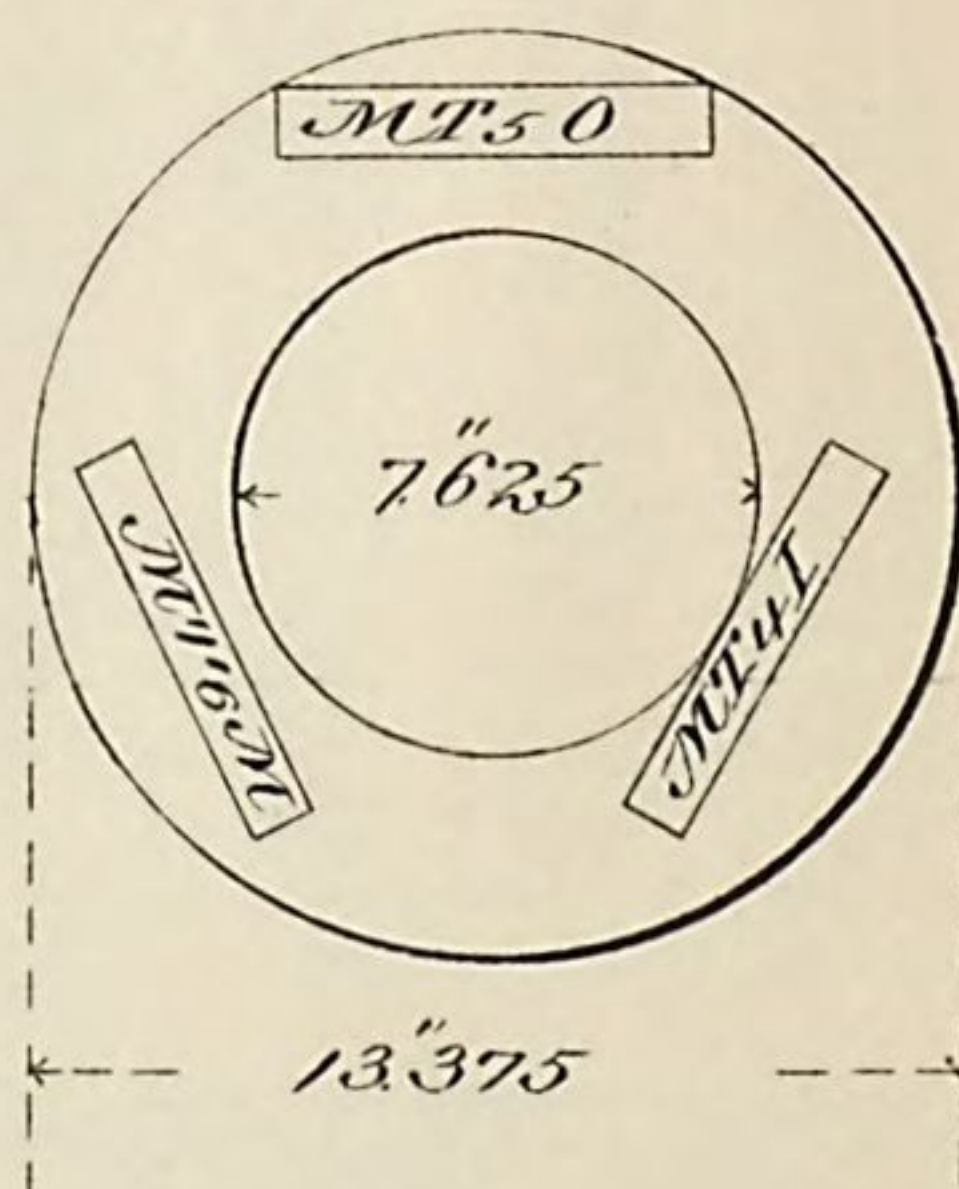
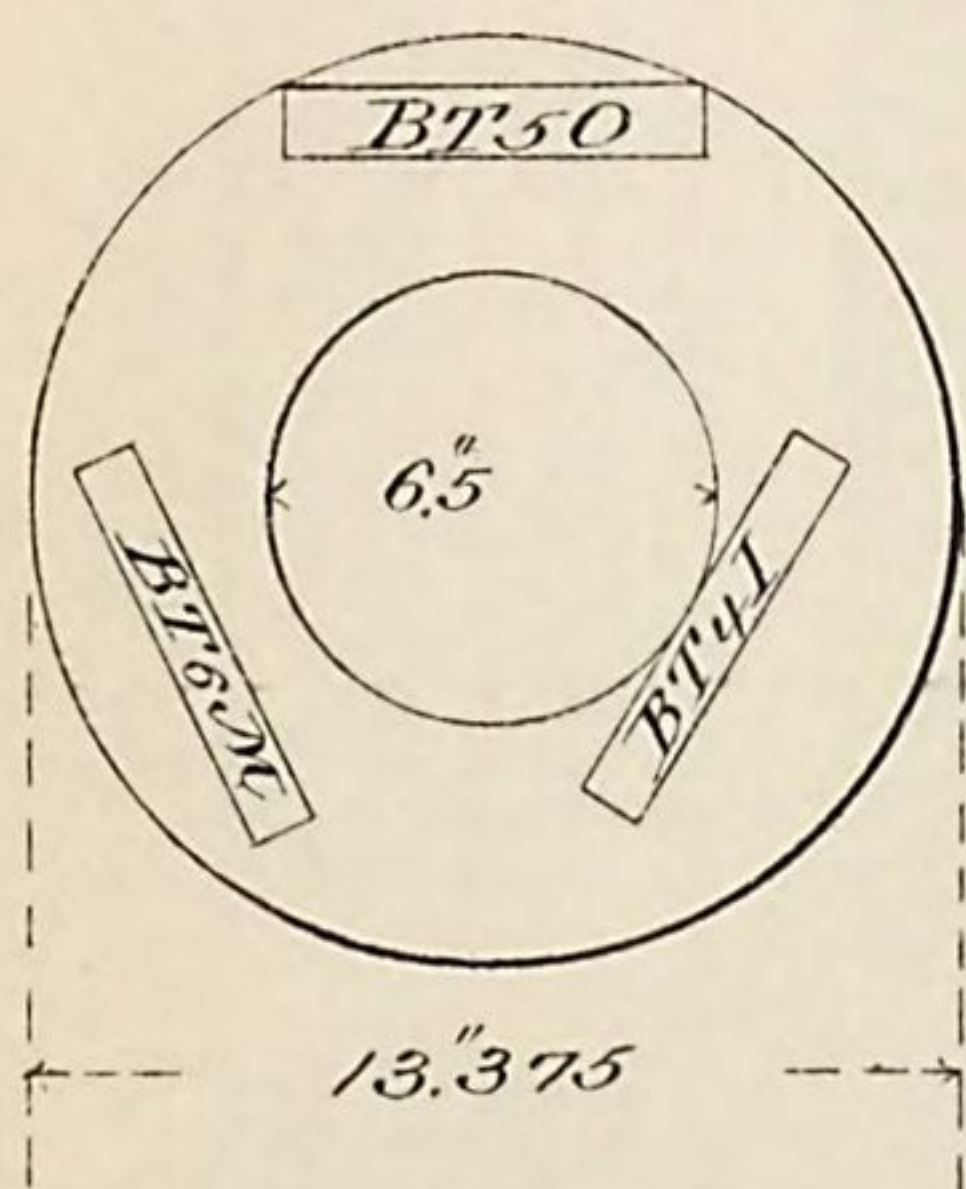
Mark, 1/2
Diameter, 1/2
Sectional area, 35 square inch.



H. E. 91 40 5

Tube No. 32 8" converted Rifle

Additional specimens



H Ex 3/ 49 2

No. 1683.

Marks, $\frac{8}{B} \frac{T_{32}}{T_4} I$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	— .000033	— .000033	
2,500	10,000	.000200	.000100	— .000033	0.	
3,750	15,000	.000300	.000100	— .000033	0.	
5,000	20,000	.000433	.000133	— .000033	0.	
6,250	25,000	.000600	.000167	— .000033	0.	
7,500	30,000	.000800	.000200	— .000033	0.	
8,750	35,000	.000967	.000167	— .000033	0.	
9,000	36,000	.001033	.000066	.....	.....	
9,250	37,000	.001067	.000034			Elastic limit.
9,500	38,000	.001100	.000033	.....	.....	
9,750	39,000	.002367	.001267	.....	.....	
10,000	40,000	.005133	.002766	.003633	.003666	
10,250	41,000	.005700	.000567	.....	.....	
10,500	42,000	.006533	.000833	.....	.....	
10,750	43,000	.007600	.001067	.....	.....	
11,000	44,000	.008767	.001167	.....	.....	
11,250	45,000	.009633	.000866	.007933	.004300	
11,500	46,000	.010833	.001200	.....	.....	
11,750	47,000	.011933	.001100			
12,000	48,000	.013000	.001067	.....	.....	
12,250	49,000	.014133	.001233	.....	.....	
12,500	50,000	.015367	.001264	.....	.....	
12,750	51,000	.016667	.001300	.....	.....	
13,000	52,000	.018100	.001433	.....	.....	
13,250	53,000	.019367	.001267	.....	.....	
13,500	54,000	.020733	.001366	.....	.....	
13,750	55,000	.022033	.001300	.....	.....	
14,000	56,000	.024133	.002100			Tensile strength.
14,250	57,000	.025733	.001600	.....	.....	
14,500	58,000	.027500	.001767	.....	.....	
14,750	59,000	.029033	.001533	.....	.....	
15,000	60,000	.031333	.002300	.....	.....	
15,500	62,000	.035833	.004500	.....	.....	
16,000	64,000	.040867	.005034	.....	.....	
16,500	66,000	.047333	.006466	.....	.....	
17,000	68,000	.054833	.007500	.....	.....	
17,500	70,000	.0667	.011867	.....	.....	
18,000	72,000	.0767	.0100			
18,500	74,000	.0967	.0200	.....	.....	
18,990	75,960	.1633	.0666	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	75,960
Elastic limit per square inch of original section.....	do...	38,000
Elongation per inch after rupture.....	inch..	0.2600
Elongation per inch under strain at elastic limit.....	do...	.001100
Reduction in diameter at point of rupture.....	do...	.134
Reduction in area after rupture, per centum of original section.....		41.9
Position of rupture.....	".60 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".31*, ".32*, ".15	

No. 1684.

Marks, $\frac{8}{B} T_{32}$

Diameter, ".563.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000067	.000067	0.	.....	
2,500	10,000	.000267	.000200	0.	.....	
3,750	15,000	.000367	.000100	0.	.....	
5,000	20,000	.000567	.000200	0.	.....	
6,250	25,000	.000767	.000200	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034			Elastic limit.
9,500	38,000	.002833	.001666	.....	.....	
9,750	39,000	.005100	.002267	.....	.....	
10,000	40,000	.006400	.001300	.004933	.004933	
10,250	41,000	.007633	.001233	.....	.....	
10,500	42,000	.008233	.000600	.....	.....	
10,750	43,000	.009200	.000967	.....	.....	
11,000	44,000	.010400	.001200	.....	.....	
11,250	45,000	.011233	.000833	.009567	.004634	
11,500	46,000	.012500	.001267	.....	.....	
11,750	47,000	.013033	.000533			
12,000	48,000	.014333	.001300	.....	.....	
12,250	49,000	.015300	.000967	.....	.....	
12,500	50,000	.016667	.001367	.....	.....	
12,750	51,000	.018000	.001333	.....	.....	
13,000	52,000	.019500	.001500	.....	.....	
13,250	53,000	.020667	.001167	.....	.....	
13,500	54,000	.022333	.001666	.....	.....	
13,750	55,000	.023500	.001167	.....	.....	
14,000	56,000	.025333	.001833			
14,250	57,000	.026667	.001334	.....	.....	
14,500	58,000	.028800	.002133	.....	.....	
14,750	59,000	.030400	.001600	.....	.....	
15,000	60,000	.032367	.001967	.....	.....	
15,500	62,000	.037067	.004700	.....	.....	
16,000	64,000	.042333	.005266	.....	.....	
16,500	66,000	.048167	.005834	.....	.....	
17,000	68,000	.058333	.010166	.....	.....	
17,500	70,000	.0667	.008367			Tensile strength.
18,000	72,000	.0767	.0100	.....	.....	
18,500	74,000	.1000	.0233	.....	.....	
18,950	75,800	.1667	.0667	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	75,800
Elastic limit per square inch of original section.....	do...	37,000
Elongation per inch after rupture.....	inch..	0.2333
Elongation per inch under strain at elastic limit.....	do...	.001167
Reduction in diameter at point of rupture.....	do...	.123
Reduction in area after rupture, per centum of original section.....		39.2
Position of rupture.....	$\frac{3}{8}$ inch from middle of stem	
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections.....	".20, ".36*, ".14	

No. 1685.

Marks, $\frac{8}{B} T_{32} M$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000333	.000200	0.	-----	
3,750	15,000	.000500	.000167	0.	-----	
5,000	20,000	.000667	.000167	0.	-----	
6,250	25,000	.000833	.000166	0.	-----	
7,500	30,000	.001000	.000167	0.	-----	
8,750	35,000	.001167	.000167	.000033	.000033	
9,000	36,000	.001200	.000033	-----	-----	
9,250	37,000	.001233	.000033	-----	-----	Elastic limit.
9,500	38,000	.001300	.000067	-----	-----	
9,750	39,000	.001400	.000100	-----	-----	
10,000	40,000	.004533	.003133	-----	-----	
10,250	41,000	.004900	.000367	-----	-----	
10,500	42,000	.006233	.001333	-----	-----	
10,750	43,000	.006900	.000667	-----	-----	
11,000	44,000	.008000	.001100	-----	-----	
11,250	45,000	.009033	.001033	.007433	.007400	
11,500	46,000	.009767	.000734	-----	-----	
11,750	47,000	.010433	.000666	-----	-----	Tensile strength.
12,000	48,000	.011733	.001300	-----	-----	
12,250	49,000	.012767	.001034	-----	-----	
12,500	50,000	.013900	.001133	-----	-----	
12,750	51,000	.015100	.001200	-----	-----	
13,000	52,000	.016500	.001400	-----	-----	
13,250	53,000	.017667	.001167	-----	-----	
13,500	54,000	.019200	.001533	-----	-----	
13,750	55,000	.020333	.001133	-----	-----	
14,000	56,000	.022000	.001667	-----	-----	
14,250	57,000	.023333	.001333	-----	-----	Tensile strength.
14,500	58,000	.025167	.001834	-----	-----	
14,750	59,000	.026667	.001500	-----	-----	
15,000	60,000	.028667	.002000	-----	-----	
15,500	62,000	.032233	.003566	-----	-----	
16,000	64,000	.036667	.004434	-----	-----	
16,500	66,000	.042067	.005400	-----	-----	
17,000	68,000	.048833	.006766	-----	-----	
17,500	70,000	.056333	.007500	-----	-----	
18,000	72,000	.066000	.009667	-----	-----	
18,500	74,000	.0833	.0173	-----	-----	Tensile strength.
19,000	76,000	.1100	.0267	-----	-----	
19,180	76,720	.1633	.0533	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	76,720
Elastic limit per square inch of original section	do...	38,000
Elongation per inch after rupture	inch..	0.2600
Elongation per inch under strain at elastic limit	do...	.001300
Reduction in diameter at point of rupture	do...	.154
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	$\frac{7}{8}$ inch from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".39", ".24", ".15	

No. 1686.

Marks, $\frac{8}{M} \frac{T_{82}}{T_{41}}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000633	.000233	0.	.....	
6,250	25,000	.000733	.000100	0.	.....	
7,500	30,000	.000867	.000134	0.	.....	
8,750	35,000	.001033	.000166	0.	.....	
9,000	36,000	.001067	.000034	.....	.....	
9,250	37,000	.001100	.000033	.....	.....	
9,500	38,000	.001133	.000033			Elastic limit.
9,750	39,000	.001167	.000033	.....	.....	
10,000	40,000	.001167	0.	0.	.....	
10,250	41,600	.001200	.000033	.....	.....	
10,500	42,000	.001233	.000033	.....	.....	
10,750	43,000	.001267	.000034	.....	.....	
11,000	44,000	.001333	.000066	.....	.....	
11,250	45,000	.001367	.000034	0.	.....	
11,500	46,000	.001433	.000066	.....	.....	
11,750	47,000	.001533	.000100	.....	.....	
12,000	48,000	.002767	.001234			Tensile strength.
12,250	49,000	.004233	.001466	.....	.....	
12,500	50,000	.006700	.002467	.004900	.004900	
12,750	51,000	.007133	.000433	.....	.....	
13,000	52,000	.008000	.000867	.....	.....	
13,250	53,000	.009267	.001267	.....	.....	
13,500	54,000	.010567	.001300	.....	.....	
13,750	55,000	.011700	.001133	.....	.....	
14,000	56,000	.012833	.001133	.....	.....	
14,250	57,000	.013833	.001000	.....	.....	
14,500	58,000	.015367	.001534			Tensile strength.
14,750	59,000	.016367	.001000	.....	.....	
15,000	60,000	.017900	.001533	.....	.....	
15,500	62,000	.020800	.002900	.....	.....	
16,000	64,000	.024000	.003200	.....	.....	
16,500	66,000	.027333	.003333	.....	.....	
17,000	68,000	.031333	.004000	.....	.....	
17,500	70,000	.035367	.004034	.....	.....	
18,000	72,000	.040400	.005033	.....	.....	
18,500	74,000	.046833	.006433	.....	.....	
19,000	76,000	.055000	.008167			Tensile strength.
19,500	78,000	.066333	.011333	.....	.....	
20,000	80,000	.0900	.023667	.....	.....	
20,290	81,160	.1300	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	81,160
Elastic limit per square inch of original section.....	do....	47,000
Elongation per inch after rupture.....	inch..	0.1433
Elongation per inch under strain at elastic limit.....	do....	.001533
Reduction in diameter at point of rupture.....	do....	.064
Reduction in area after rupture, per centum of original section.....		21.4
Position of rupture.....	$\frac{1}{2}$ inch from middle of stem	
Character of broken surface.....	granular, with belt of dull-colored metal	
Elongation of inch sections.....	".19*, ".15, ".09	

No. 1687.

Marks, $\frac{8}{M} T_{32}$
 $\frac{5}{T_5} O$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	-----	
2,500	10,000	.000267	.000100	0.	-----	
3,750	15,000	.000467	.000200	0.	-----	
5,000	20,000	.000633	.000166	0.	-----	
6,250	25,000	.000800	.000167	0.	-----	
7,500	30,000	.000967	.000167	0.	-----	
8,750	35,000	.001133	.000166	.000033	.000033	
10,000	40,000	.001267	.000134	.000033	0.	
10,250	41,000	.001300	.000033	-----	-----	
10,500	42,000	.001367	.000067	-----	-----	Elastic limit.
10,750	43,000	.001433	.000066	-----	-----	
11,000	44,000	.001500	.000067	-----	-----	
11,250	45,000	.001533	.000033	.000133	.000100	
11,500	46,000	.001733	.000200	-----	-----	
11,750	47,000	.002800	.001067	-----	-----	
12,000	48,000	.004833	.002033	-----	-----	
12,250	49,000	.005500	.000667	-----	-----	
12,500	50,000	.006933	.001433	.005133	.005000	
12,750	51,000	.007667	.000734	-----	-----	
13,000	52,000	.008533	.000866	-----	-----	
13,250	53,000	.009700	.001167	-----	-----	
13,500	54,000	.010667	.000967	-----	-----	
13,750	55,000	.012000	.001333	-----	-----	
14,000	56,000	.013233	.001233	-----	-----	
14,250	57,000	.014333	.001100	-----	-----	
14,500	58,000	.015433	.001100	-----	-----	
14,750	59,000	.016600	.001167	-----	-----	
15,000	60,000	.018000	.001400	-----	-----	
15,500	62,000	.020667	.002667	-----	-----	
16,000	64,000	.023567	.002900	-----	-----	
16,500	66,000	.026667	.003100	-----	-----	
17,000	68,000	.030333	.003666	-----	-----	
17,500	70,000	.034833	.004500	-----	-----	
18,000	72,000	.039000	.004167	-----	-----	
18,500	74,000	.044667	.005667	-----	-----	
19,000	76,000	.052333	.007666	-----	-----	
19,500	78,000	.061667	.009334	-----	-----	
20,000	80,000	.0767	.015033	-----	-----	
20,500	82,000	.1167	.0400	-----	-----	
20,520	82,080	.1467	.0300	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	82,080
Elastic limit per square inch of original section	do...	45,000
Elongation per inch after rupture	inch..	0.2133
Elongation per inch under strain at elastic limit	do...	.001533
Reduction in diameter at point of rupture	do...	.134
Reduction in area after rupture, per centum of original section		41.9
Position of rupture	$\frac{3}{8}$ inch from middle of stem	
Character of broken surface	granular; dull center	
Elongation of inch sections	".16, ".36*, ".12	

No. 1688.

Marks, $\frac{8T_{32}}{MT_6M}$
 Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000300	.000167	0.	-----	
3,750	15,000	.000467	.000167	0.	-----	
5,000	20,000	.000633	.000166	0.	-----	
6,250	25,000	.000800	.000167	0.	-----	
7,500	30,000	.000967	.000167	0.	-----	
8,750	35,000	.001133	.000166	0.	-----	
10,000	40,000	.001267	.000134	0.	-----	
10,250	41,000	.001300	.000033	-----	-----	Elastic limit.
10,500	42,000	.001400	.000100	-----	-----	
10,750	43,000	.001633	.000233	-----	-----	
11,000	44,000	.002167	.000534	-----	-----	
11,250	45,000	.003733	.001566	.002100	.002100	
11,500	46,000	.005000	.001267	-----	-----	
11,750	47,000	.005933	.000933	-----	-----	
12,000	48,000	.007067	.001134	-----	-----	
12,250	49,000	.008067	.001000	-----	-----	
12,500	50,000	.009033	.000966	.007100	.005000	
12,750	51,000	.009667	.000634	-----	-----	
13,000	52,000	.010667	.001000	-----	-----	
13,250	53,000	.011500	.000833	-----	-----	
13,500	54,000	.012867	.001367	-----	-----	
13,750	55,000	.013867	.001000	-----	-----	
14,000	56,000	.015067	.001200	-----	-----	
14,250	57,000	.016333	.001266	-----	-----	
14,500	58,000	.017667	.001334	-----	-----	
14,750	59,000	.018833	.001166	-----	-----	
15,000	60,000	.020567	.001734	-----	-----	Tensile strength.
15,500	62,000	.023333	.002766	-----	-----	
16,000	64,000	.026467	.003134	-----	-----	
16,500	66,000	.030000	.003533	-----	-----	
17,000	68,000	.034000	.004000	-----	-----	
17,500	70,000	.038667	.004667	-----	-----	
18,000	72,000	.044000	.005333	-----	-----	
18,500	74,000	.051667	.007667	-----	-----	
19,000	76,000	.060000	.008333	-----	-----	
19,500	78,000	.0733	.0133	-----	-----	
20,000	80,000	.1000	.0267	-----	-----	
20,190	80,760	.1333	.0333	-----	-----	

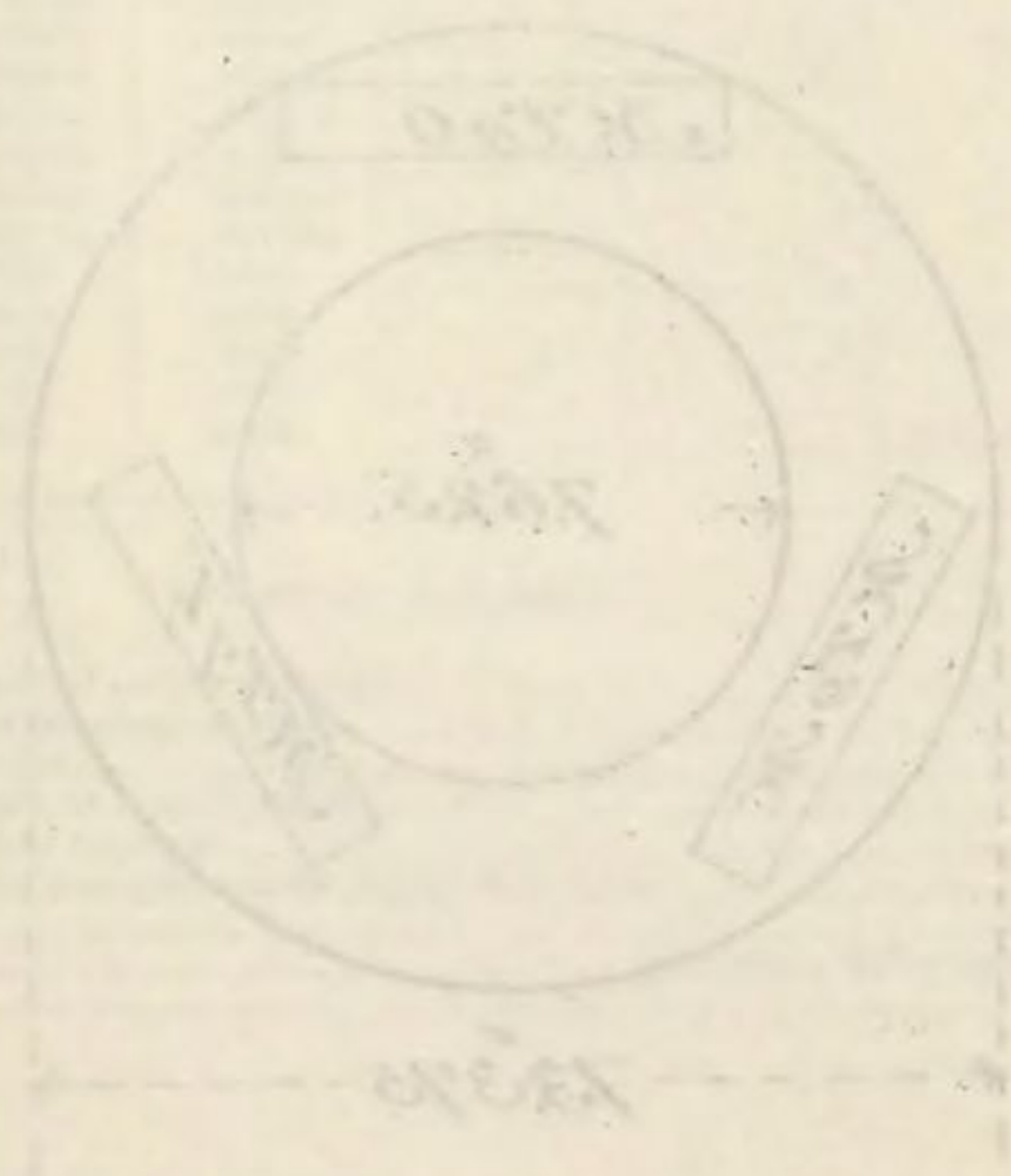
General summary.

Tensile strength per square inch of original section.....pounds... 80,760
 Elastic limit per square inch of original section.....do... 42,000
 Elongation per inch after rupture.....inch... .01667
 Elongation per inch under strain at elastic limit.....do... .001400
 Reduction in diameter at point of rupture.....do... .084
 Reduction in area after rupture, per centum of original section..... 27.6
 Position of rupture.....".70 from neck
 Character of broken surface.....granular; dull-colored spot at circumference
 Elongation of inch sections.....".28*, ".13, ".09

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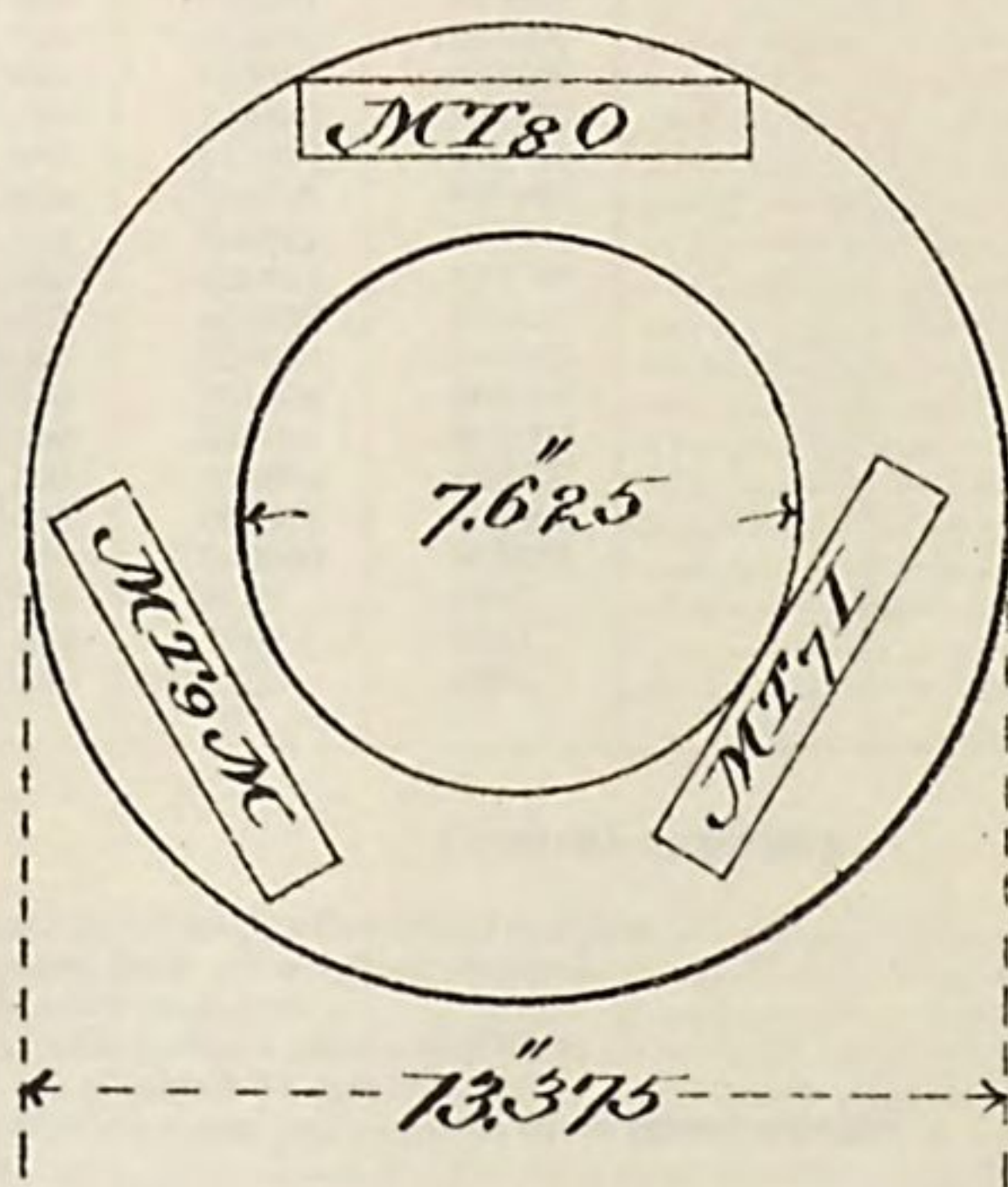
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Tube No. 32 8" converted Rifle

Additional specimens



H Ex 3/ 49 2

No. 2347.

Marks, $\frac{8}{M} \frac{T_{32}}{T_7} I$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
7,750	31,000	.001000	.000033	.....	.....	
8,000	32,000	.001033	.000033	.....	.....	
8,250	33,000	.001100	.000067	.....	.....	
8,500	34,000	.001167	.000067	.....	.....	Elastic limit.
8,570	35,000	.007467	.006300	.....	.....	
9,000	36,000	.009333	.001866	.....	.....	
9,250	37,000	.010067	.000734	.....	.....	
9,500	38,000	.011367	.001300	.....	.....	
9,750	39,000	.012400	.001033	.....	.....	
10,000	40,000	.013400	.001000	.....	.....	
10,500	42,000	.015433	.002033	.....	.....	
11,000	44,000	.017733	.002300	.....	.....	
11,500	46,000	.020167	.002434	.....	.....	
12,000	48,000	.022833	.002666	.....	.....	
12,500	50,000	.026200	.003367	.....	.....	
13,000	52,000	.029333	.003133	.....	.....	
13,500	54,000	.033000	.003667	.....	.....	
14,000	56,000	.036900	.003900	.....	.....	
14,500	58,000	.041333	.004433	.....	.....	
15,000	60,000	.046667	.005334	.....	.....	
15,500	62,000	.053000	.006333	.....	.....	
16,000	64,000	.060000	.007000	.....	.....	
16,500	66,000	.0700	.0100	.....	.....	
17,000	68,000	.0800	.0100	.....	.....	
17,500	70,000	.0967	.0167	.....	.....	
18,000	72,000	.1267	.0300	.....	.....	
18,160	72,640	.1633	.0366	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	72,640
Elastic limit per square inch of original section	do..	34,000
Elongation per inch after rupture	inch..	0.1833
Elongation per inch under strain at elastic limit	do..	.001167
Reduction in diameter at point of rupture	do..	.084
Reduction in area after rupture, per centum of original section		27.6
Position of rupture	$\frac{5}{8}$ inch from neck	
Character of broken surface	granular; flaky spot near circumference	
Elongation of inch sections	".14, ".15, ".26*	

No. 2348.

Marks, $\frac{8}{M} T_{32}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	.....	.....	
2,500	10,000	.000267	.000167	.....	.....	
3,750	15,000	.000400	.000133	.....	.....	
5,000	20,000	.000533	.000133	.....	.....	
6,250	25,000	.000667	.000134	.....	.....	
7,500	30,000	.000867	.000200	.....	.....	
8,750	35,000	.001033	.000166	.....	.....	
9,000	36,000	.001067	.000034	.....	.....	
9,250	37,000	.001100	.000033	.....	.....	
9,500	38,000	{ .001167	.000067 }	.....	.....	Elastic limit.
9,750	39,000	{ .007667	.006500 }	.....	.....	
10,000	40,000	.010333	.002666	.....	.....	
10,500	42,000	.011333	.001000	.....	.....	
11,000	44,000	.012767	.001434	.....	.....	
11,500	46,000	.015333	.002566	.....	.....	
12,000	48,000	.017500	.002167	.....	.....	
12,500	50,000	.019833	.002333	.....	.....	
13,000	52,000	.022533	.002700	.....	.....	
13,500	54,000	.025167	.002634	.....	.....	
14,000	56,000	.028333	.003166	.....	.....	
14,500	58,000	.031933	.003600	.....	.....	
15,000	60,000	.035667	.003734	.....	.....	
15,500	62,000	.040400	.004733	.....	.....	
16,000	64,000	.045333	.004933	.....	.....	
16,500	66,000	.050767	.005434	.....	.....	
17,000	68,000	.057000	.006233	.....	.....	
17,500	70,000	.0667	.0097	.....	.....	
18,000	72,000	.0733	.0066	.....	.....	
18,500	74,000	.0900	.0167	.....	.....	
18,960	75,840	.1067	.0167	.....	.....	
		.1733	.0666	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	75,840
Elastic limit per square inch of original section.	do...	38,000
Elongation per inch after rupture	inch..	0.2267
Elongation per inch under strain at elastic limit	do...	.001167
Reduction in diameter at point of rupture	do ..	.105
Reduction in area after rupture, per centum of original section		33.5
Position of rupture		1".1 from neck
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections		".14, ".25, ".29*

No. 2349.

Marks, $\frac{8}{M} T_{32}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001167	.000234	.000033	.000033	Elastic limit.
9,000	36,000	.006800	.005633	.....	.....	
9,250	37,000	.009133	.002333	.....	.....	
9,500	38,000	.010333	.001200	.....	.....	
9,750	39,000	.011033	.000700	.....	.....	
10,000	40,000	.012200	.001167	.....	.....	
10,500	42,000	.014400	.002200	.....	.....	
11,000	44,000	.016467	.002067	.....	.....	
11,500	46,000	.018800	.002333	.....	.....	
12,000	48,000	.021267	.002467	.....	.....	
12,500	50,000	.024167	.002900	.....	.....	
13,000	52,000	.027367	.003209	.....	.....	
13,500	54,000	.030667	.003300	.....	.....	
14,000	56,000	.034333	.003666	.....	.....	
14,500	58,000	.038333	.004000	.....	.....	
15,000	60,000	.043000	.004667	.....	.....	
15,500	62,000	.048333	.005333	.....	.....	
16,000	64,000	.055000	.006667	.....	.....	
16,500	66,000	.062167	.007167	.....	.....	
17,000	68,000	.0733	.011133	.....	.....	
17,500	70,000	.0867	.0134	.....	.....	
18,000	72,000	.1033	.0166	.....	.....	
18,380	73,520	.1367	.0334	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds.	73,520
Elastic limit per square inch of original section.....	do.	35,000
Elongation per inch after rupture.....	inch..	0.1367
Elongation per inch under strain at elastic limit.....	do.	.001167
Reduction in diameter at point of rupture	do.	.064
Reduction in area after rupture, per centum of original section		21.4
Position of rupture	".23 from neck	
Character of broken surface.....	granular	
Elongation of inch sections	".13, ".15, ".13*	

NEW TUBE No. 32.

No. 2668.

Marks, $\frac{8}{B} \frac{Cn}{T_7} \frac{R_{32}}{I} T$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	-----	
2,500	10,000	.000300	.000200	0.	-----	
3,750	15,000	.000367	.000067	0.	-----	
5,000	20,000	.000600	.000233	0.	-----	
6,250	25,000	.000700	.000100	-.000033	-.000033	
7,500	30,000	.000967	.000267	-.000033	0.	Elastic limit.
8,750	35,000	.001167	.000200	-----	-----	
9,000	36,000	.005600	.004333	-----	-----	
9,250	37,000	.006333	.000733	-----	-----	
9,500	38,000	.007267	.000934	-----	-----	
9,750	39,000	.008267	.001000	-----	-----	
10,000	40,000	.009333	.001066	-----	-----	
10,250	41,000	.010133	.000800	-----	-----	
10,500	42,000	.011467	.001334	-----	-----	
10,750	43,000	.012333	.000866	-----	-----	
11,000	44,000	.013667	.001334	-----	-----	
11,250	45,000	.015333	.001666	-----	-----	
11,500	46,000	.016667	.001334	-----	-----	
11,750	47,000	.017667	.001000	-----	-----	
12,000	48,000	.019333	.001666	-----	-----	
12,250	49,000	.020167	.000834	-----	-----	
12,500	50,000	.021823	.001666	-----	-----	
13,000	52,000	.025000	.003167	-----	-----	
13,500	54,000	.028333	.003333	-----	-----	
14,000	56,000	.032667	.004334	-----	-----	
14,500	58,000	.037000	.004333	-----	-----	
15,000	60,000	.0467	.0097	-----	-----	
15,500	62,000	.0533	.0066	-----	-----	
16,000	64,000	.0600	.0067	-----	-----	
16,500	66,000	.0700	.0100	-----	-----	
17,000	68,000	.0867	.0167	-----	-----	
17,500	70,000	.1100	.0233	-----	-----	
18,000	72,000	.1533	.0433	-----	-----	
18,110	72,440	-----	-----	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	72,440
Elastic limit per square inch of original section.....	do...	35,000
Elongation per inch after rupture.....	inch..	0.2933
Elongation per inch under strain at elastic limit.....	do...	.001167
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	".30 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".18, ".43*, ".27	

No. 2669.

Marks, $\frac{8 \text{ Cn R}_{32} \text{ T}}{\text{B T}_8 \text{ O}}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	-----	-----	
2,500	10,000	.000333	.000233	-----	-----	
3,750	15,000	.000467	.000134	-----	-----	
5,000	20,000	.000633	.000166	-----	-----	
6,250	25,000	.000800	.000167	-----	-----	
7,500	30,000	.000967	.000167	— .000033	— .000033	
8,750	35,000	.001167	.000200	-----	-----	
9,000	36,000	.001233	.000066	-----	-----	Elastic limit.
9,250	37,000	.003000	.001767	-----	-----	
9,500	38,000	.004267	.001267	-----	-----	
9,750	39,000	.005233	.000966	-----	-----	
10,000	40,000	.006167	.000934	-----	-----	
10,250	41,000	.007033	.000866	-----	-----	
10,500	42,000	.008000	.000967	-----	-----	
10,750	43,000	.008767	.000767	-----	-----	
11,000	44,000	.009933	.001166	-----	-----	
11,250	45,000	.010733	.000800	-----	-----	
11,500	46,000	.012033	.001300	-----	-----	
11,750	47,000	.013000	.000967	-----	-----	
12,000	48,000	.014267	.001267	-----	-----	
12,250	49,000	.015267	.001000	-----	-----	
12,500	50,000	.016600	.001333	-----	-----	
13,000	52,000	.019600	.003000	-----	-----	
13,500	54,000	.022033	.002433	-----	-----	
14,000	56,000	.025067	.003034	-----	-----	
14,500	58,000	.028567	.003500	-----	-----	
15,000	60,000	.033000	.004433	-----	-----	
15,500	62,000	.036667	.003667	-----	-----	
16,000	64,000	.041333	.004666	-----	-----	
16,500	66,000	.0467	.005367	-----	-----	
17,000	68,000	.0567	.0100	-----	-----	
17,500	70,000	.0633	.0066	-----	-----	
18,000	72,000	.0700	.0067	-----	-----	
18,500	74,000	.0900	.0200	-----	-----	
19,000	76,000	.1133	.0233	-----	-----	
19,240	76,960	.1567	.0434	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	76,960
Elastic limit per square inch of original section	do...	36,000
Elongation per inch after rupture	inch..	0.2567
Elongation per inch under strain at elastic limit	do...	.001233
Reduction in diameter at point of rupture	do...	.184
Reduction in area after rupture, per centum of original section		54.6
Position of rupture	at middle of stem	
Character of broken surface	silky	
Elongation of inch sections	" .16, ".46*, ".15	

No. 2670.

Marks, $\frac{8}{B} \frac{Cn}{T_9} \frac{R_{32}}{M} \frac{T}{M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.		
2,500	10,000	.000267	.000134	0.		
3,750	15,000	.000433	.000166	0.		
5,000	20,000	.000600	.000167	0.		
6,250	25,000	.000767	.000167	0.		
7,500	30,000	.000967	.000200	— .000033	— .000033	
8,500	34,000	.001133	.000166			Elastic limit.
8,750	35,000	.001200	.000067	.....	.....	
9,000	36,000	.003000	.001800	.....	.....	
9,250	37,000	.004733	.001733	.....	.....	
9,500	38,000	.005700	.000967	.....	.....	
9,750	39,000	.006567	.000867	.....	.....	
10,000	40,000	.007433	.000866	.....	.....	
10,250	41,000	.008367	.000934	.....	.....	
10,500	42,000	.009333	.000966	.....	.....	
10,750	43,000	.010400	.001067	.....	.....	
11,000	44,000	.011500	.001100	.....	.....	
11,250	45,000	.012433	.000933	.....	.....	
11,500	46,000	.013733	.001300	.....	.....	
11,750	47,000	.014733	.001000	.....	.....	
12,000	48,000	.016233	.001500	.....	.....	
12,500	50,000	.018933	.002700	.....	.....	
13,000	52,000	.022033	.003100	.....	.....	
13,500	54,000	.025167	.003134	.....	.....	
14,000	56,000	.028833	.003666	.....	.....	
14,500	58,000	.032733	.003900	.....	.....	
15,000	60,000	.037667	.004934	.....	.....	
15,500	62,000	.042267	.004600	.....	.....	
16,000	64,000	.0467	.004433	.....	.....	
16,500	66,000	.0567	.0100	.....	.....	
17,000	68,000	.0667	.0100	.....	.....	
17,500	70,000	.0767	.0100	.....	.....	
18,000	72,000	.0933	.0166	.....	.....	
18,500	74,000	.1233	.0300			Tensile strength.
18,700	74,800	.1667	.0434	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	74,800
Elastic limit per square inch of original section	do...	35,000
Elongation per inch after rupture.....	inch..	0.2533
Elongation per inch under strain at elastic limit	do...	.001200
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section		49.7
Position of rupture.....	1".32 from neck	
Character of broken surface	silky	
Elongation of inch sections	".15, ".29*, ".32*	

No. 2671.

Marks, $\frac{8 \text{ Cn R}_{32} \text{ T}}{\text{M T}_{10} \text{ I}}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000600	.000133	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001200	.000033	.....	.....	
9,750	39,000	.001267	.000067	.....	.....	
10,000	40,000	.001333	.000066	.....	.....	
10,250	41,000	.001367	.000034			Elastic limit.
10,500	42,000	.002233	.000866	.....	.....	
10,750	43,000	.003433	.001200	.....	.....	
11,000	44,000	.004867	.001434	.....	.....	
11,250	45,000	.006133	.001266	.....	.....	
11,500	46,000	.007233	.001100	.....	.....	
11,750	47,000	.008000	.000767	.....	.....	
12,000	48,000	.009333	.001333	.....	.....	
12,250	49,000	.010100	.000767	.....	.....	
12,500	50,000	.011200	.001100	.....	.....	
13,000	52,000	.013567	.002367	.....	.....	
13,500	54,000	.015833	.002266	.....	.....	
14,000	56,000	.018267	.002434	.....	.....	
14,500	58,000	.021267	.003600	.....	.....	
15,000	60,000	.024167	.002900	.....	.....	
15,500	62,000	.027333	.003166	.....	.....	
16,000	64,000	.030833	.003500	.....	.....	
16,500	66,000	.034833	.004000	.....	.....	
17,000	68,000	.039333	.004500	.....	.....	
17,500	70,000	.0433	.003967	.....	.....	
18,000	72,000	.0533	.0100	.....	.....	
18,500	74,000	.0633	.0100	.....	.....	
19,000	76,000	.0700	.0067	.....	.....	
19,500	78,000	.0900	.0200	.....	.....	
19,980	79,920	.1400	.0500			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	79,920
Elastic limit per square inch of original section.....	do....	41,000
Elongation per inch after rupture.....	inch..	0.2033
Elongation per inch under strain at elastic limit.....	do....	.001367
Reduction in diameter at point of rupture.....	do....	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	$\frac{7}{8}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".12, ".13, ".36*	

H. Ex. 31—48

No. 2672.

Marks, $\frac{8}{M} \frac{Cn}{T_{11}} \frac{R_{32}}{O} T$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000233	.000100	0.	.....	
3,750	15,000	.000367	.000134	0.	.....	
5,000	20,000	.000567	.000200	0.	.....	
6,250	25,000	.000700	.000133	0.	.....	
7,500	30,000	.000900	.000200	0.	.....	
8,750	35,000	.001100	.000200	0.	.....	
10,000	40,000	.001300	.000200	.....	.....	
10,250	41,000	.001333	.000033			Elastic limit.
10,500	42,000	.001433	.000100	.....	.....	
10,750	43,000	.002900	.001467	.....	.....	
11,000	44,000	.004500	.001600	.....	.....	
11,250	45,000	.005433	.000933	.....	.....	
11,500	46,000	.006500	.001067	.....	.....	
11,750	47,000	.007500	.001000	.....	.....	
12,000	48,000	.008667	.001167	.....	.....	
12,250	49,000	.009733	.001066	.....	.....	
12,500	50,000	.010733	.001000	.....	.....	
13,000	52,000	.012667	.001934	.....	.....	
13,500	54,000	.014967	.002300	.....	.....	
14,000	56,000	.017233	.002266	.....	.....	
14,500	58,000	.019800	.002567	.....	.....	
15,000	60,000	.022500	.002700	.....	.....	
15,500	62,000	.025500	.003000	.....	.....	
16,000	64,000	.028933	.003433	.....	.....	
16,500	66,000	.032333	.003400	.....	.....	
17,000	68,000	.036667	.004334			Tensile strength.
17,500	70,000	.042167	.005500	.....	.....	
18,000	72,000	.0467	.004533	.....	.....	
18,500	74,000	.0567	.0100	.....	.....	
19,000	76,000	.0667	.0100	.....	.....	
19,500	78,000	.0733	.0066	.....	.....	
20,000	80,000	.0900	.0167	.....	.....	
20,500	82,000	.1333	.0433	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	82,000
Elastic limit per square inch of original section.....	do...	42,000
Elongation per inch after rupture.....	inch..	0.2200
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.154
Reduction in area after rupture, per centum of original section.....		47.2
Position of rupture.....	1".10 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".11, ".23, ".32*	

No. 2673.

Marks, $\frac{8}{M} \frac{C_{11}}{T_{12}} \frac{R_{32}}{M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000867	.000200	0.	.....	
7,500	30,000	.001033	.000166	0.	.....	
8,750	35,000	.001233	.000200	.000067	.000067	
9,000	36,000	.001300	.000067	.....	.....	
9,250	37,000	.001333	.000033	.....	.....	Elastic limit.
9,500	38,000	.001367	.000034	.....	.....	
9,750	39,000	.001500	.000133	.....	.....	
10,000	40,000	.003500	.002000	.....	.....	
10,250	41,000	.005333	.001833	.....	.....	
10,500	42,000	.007000	.001667	.....	.....	
10,750	43,000	.008000	.001000	.....	.....	
11,000	44,000	.009000	.001000	.....	.....	
11,250	45,000	.009833	.000833	.....	.....	
11,500	46,000	.010700	.000867	.....	.....	
11,750	47,000	.011400	.000700	.....	.....	
12,000	48,000	.012833	.001433	.....	.....	
12,250	49,000	.014033	.001200	.....	.....	
12,500	50,000	.015500	.001467	.....	.....	
13,000	52,000	.018333	.002833	.....	.....	
13,500	54,000	.020700	.002367	.....	.....	
14,000	56,000	.023833	.003133	.....	.....	
14,500	58,000	.027333	.003500	.....	.....	
15,000	60,000	.030667	.003334	.....	.....	
15,500	62,000	.035000	.004333	.....	.....	
16,000	64,000	.039667	.004667	.....	.....	
16,500	66,000	.0467	.007033	.....	.....	
17,000	68,000	.0533	.0066	.....	.....	
17,500	70,000	.0633	.0100	.....	.....	
18,000	72,000	.0700	.0067	.....	.....	
18,500	74,000	.0933	.0233	.....	.....	
19,000	76,000	.1200	.0267	.....	.....	
19,150	76,600	.1667	.0467	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	76,600
Elastic limit per square inch of original section.....	do...	38,000
Elongation per inch after rupture.....	inch..	0.2233
Elongation per inch under strain at elastic limit.....	do...	.001367
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	1".60 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".13, ".40*, ".14	

No. 1001.

Marks, $\frac{8}{B} T_{35}$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	.000033	.000033	
8,750	35,000	.001167	.000234	.000067	.000034	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033			Elastic limit.
9,500	38,000	.001333	.000100	.....	.....	
9,750	39,000	.002333	.001090	.....	.....	
10,000	40,000	.004833	.002500	.003567	.003500	
10,250	41,000	.005500	.000667	.....	.....	
10,500	42,000	.006700	.001200	.....	.....	
10,750	43,000	.007900	.001200	.....	.....	
11,000	44,000	.008933	.001033	.....	.....	
11,250	45,000	.009967	.001034	.008300	.001733	
11,500	46,000	.011400	.001433	.....	.....	
11,750	47,000	.012167	.000767			Tensile strength. Load at time of rupture.
12,000	48,000	.013500	.001333	.....	.....	
12,250	49,000	.014767	.001267	.....	.....	
12,500	50,000	.016533	.001766	.014600	.006300	
13,000	52,000	.019333	.002800	.....	.....	
13,500	54,000	.022267	.002934	.....	.....	
14,000	56,000	.026100	.003833	.....	.....	
14,500	58,000	.030400	.004300	.....	.....	
15,000	60,000	.034600	.004200	.....	.....	
15,500	62,000	.040000	.005400	.....	.....	
16,000	64,000	.046933	.006933	.....	.....	
16,500	66,000	.054700	.007767	.....	.....	
17,000	68,000	.065833	.011133	.....	.....	
17,500	70,000	.082500	.016667	.....	.....	
18,000	72,000	.1100	.0275	.....	.....	
18,260	73,040	.1733	.0633	.....	.....	
15,700	.....	.....	.....	.....	.....	

General summary.

Specific gravity.....	7.8552
Hardness.....	11.49
Tensile strength per square inch of original section.....pounds..	73,040
Elastic limit per square inch of original section.....do..	37,000
Elongation per inch after rupture.....inch..	0.2767
Elongation per inch under strain at elastic limit.....do..	.001233
Reduction in diameter at point of rupture.....do..	.164
Reduction in area after rupture, per centum of original section.....	49.7
Position of rupture.....	$\frac{1}{8}$ inch from middle of stem
Character of broken surface.....	silky

No. 1002.

Marks, $\frac{8}{B}T_{35}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000067	.000067	0.	.....	
2,500	10,000	.000233	.000166	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
9,000	36,000	.001100	.000033	.....	.....	
9,250	37,000	.001133	.000033	.....	.....	
9,500	38,000	.001167	.000034	.....	.....	
9,750	39,000	.001200	.000033	.....	.....	
10,000	40,000	.001233	.000033	0.	.....	
10,250	41,000	.001267	.000034	.....	.....	Elastic limit.
10,500	42,000	.004000	.002733	.....	.....	
10,750	43,000	.004833	.000833	.....	.....	
11,000	44,000	.006033	.001200	.....	.....	
11,250	45,000	.006667	.000634	.005033	.005033	
11,500	46,000	.008000	.001333	.....	.....	
11,750	47,000	.009100	.001100	.....	.....	
12,000	48,000	.010233	.001133	.....	.....	
12,250	49,000	.011367	.001134	.....	.....	
12,500	50,000	.012600	.001233	.010733	.005700	
13,000	52,000	.015133	.002533	.....	.....	
13,500	54,000	.018333	.003200	.....	.....	
14,000	56,000	.021267	.002934	.....	.....	
14,500	58,000	.024067	.002800	.....	.....	
15,000	60,000	.028000	.003933	.....	.....	
15,500	62,000	.032000	.004000	.....	.....	
16,000	64,000	.036367	.004367	.....	.....	
16,500	66,000	.042667	.006300	.....	.....	
17,000	68,000	.049167	.006500	.....	.....	
17,500	70,000	.058000	.008833	.....	.....	
18,000	72,000	.071000	.013000	.....	.....	
18,500	74,000	.0933	.0223	.....	.....	
18,950	75,800	.1600	.0667	.....	.....	Tensile strength.
15,800	.....	.....	.....	.....	.....	Load at time of rupture.

General summary.

Tensile strength per square inch of original section.....	pounds..	75,800
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.2533
Elongation per inch under strain at elastic limit.....	do...	.001267
Reduction in diameter at point of rupture.....	do...	.174
Reduction in area after rupture, per centum of original section.....		52.2
Position of rupture.....	$\frac{3}{8}$ inch from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".19, ".44*, ".13	

No. 1003.

Marks, $\frac{8}{B} T_{35}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	.000033	.000033	
6,250	25,000	.000833	.000166	.000033	0.	
7,500	30,000	.001000	.000167	.000067	.000034	
8,750	35,000	.001133	.000133	.....	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001233	.000066	.....	.....	
9,500	38,000	.001300	.000067			Elastic limit.
9,750	39,000	.001533	.000233	.....	.....	
10,000	40,000	.004233	.002700	.002900	.002833	
10,250	41,000	.005400	.001167	.....	.....	
10,500	42,000	.006233	.000833	.....	.....	
10,750	43,000	.007767	.001534	.....	.....	
11,000	44,000	.008267	.000500	.....	.....	
11,250	45,000	.009200	.000933	.007600	.004700	
11,500	46,000	.010567	.001367	.....	.....	
11,750	47,000	.011767	.001200	.....	.....	
12,000	48,000	.012767	.001000			Tensile strength. Load at time of rupture.
12,250	49,000	.014133	.001366	.....	.....	
12,500	50,000	.015633	.001500	.013767	.006167	
13,000	52,000	.017400	.001767	.....	.....	
13,500	54,000	.020833	.003433	.....	.....	
14,000	56,000	.023767	.002934	.....	.....	
14,500	58,000	.026833	.003066	.....	.....	
15,000	60,000	.030833	.004000	.....	.....	
15,500	62,000	.035500	.004667	.....	.....	
16,000	64,000	.040833	.005333	.....	.....	
16,500	66,000	.047067	.006234	.....	.....	
17,000	68,000	.054500	.007433	.....	.....	
17,500	70,000	.065500	.011000	.....	.....	
18,000	72,000	.081333	.015833	.....	.....	
18,500	74,000	.1067	.025367	.....	.....	
18,800	75,200	.....	.....	.....	.....	
15,900	.....	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	75,200
Elastic limit per square inch of original section	do...	38,000
Elongation per inch after rupture	inch..	0.2600
Elongation per inch under strain at elastic limit	do...	.001300
Reduction in diameter at point of rupture	do...	.174
Reduction in area after rupture, per centum of original section		52.2
Position of rupture	$\frac{3}{8}$ inch from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".20, ".42*, ".16	

No. 1004.

Marks, $\frac{8}{M} T_{35}$ Diameter, $\frac{11}{16}$.564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	0.	
2,500	10,000	.000333	.000200	.000033	.000032	
3,750	15,000	.000467	.000134	.000067	.000034	
5,000	20,000	.000633	.000166	.000067	0.	
6,250	25,000	.000800	.000167	.000067	0.	
7,500	30,000	.000967	.000167	.000067	0.	
8,750	35,000	.001133	.000166	.000100	.000033	
10,000	40,000	.001267	.000134	.000100	0.	
10,250	41,000	.001300	.000033	-----	-----	
10,500	42,000	.001367	.000067	-----	-----	
10,750	43,000	.001400	.000033	-----	-----	
11,000	44,000	.001433	.000033	-----	-----	
11,250	45,000	.001467	.000034	.000100	0.	
11,500	46,000	.001533	.000066	-----	-----	Elastic limit.
11,750	47,000	.001733	.000200	-----	-----	
12,000	48,000	.002667	.000934	-----	-----	
12,250	49,000	.006000	.003333	-----	-----	
12,500	50,000	.008267	.002267	.006400	.006300	
12,750	51,000	.008900	.000633	-----	-----	
13,000	52,000	.009767	.000867	-----	-----	
13,250	53,000	.010800	.001033	-----	-----	
13,500	54,000	.012333	.001533	-----	-----	
13,750	55,000	.014000	.001667	-----	-----	
14,000	56,000	.015333	.001333	-----	-----	
14,250	57,000	.017000	.001667	-----	-----	
14,500	58,000	.018333	.001333	-----	-----	
14,750	59,000	.019833	.001500	-----	-----	
15,000	60,000	.021667	.001834	-----	-----	
15,500	62,000	.024933	.003266	-----	-----	
16,000	64,000	.028467	.003534	-----	-----	
16,500	66,000	.033000	.004533	-----	-----	
17,000	68,000	.038333	.005333	-----	-----	
17,500	70,000	.044000	.005667	-----	-----	
18,000	72,000	.051500	.007500	-----	-----	
18,500	74,000	.061667	.010167	-----	-----	
19,000	76,000	.0800	.018333	-----	-----	
19,500	78,000	.1467	.0667	-----	-----	Tensile strength.
17,500	-----	-----	-----	-----	-----	Load at time of rupture.

General summary.

Specific gravity	7.8517
Hardness	13.65
Tensile strength per square inch of original section	pounds.. 78,000
Elastic limit per square inch of original section	do... 46,000
Elongation per inch after rupture	inch.. 0.2133
Elongation per inch under strain at elastic limit	do... .001533
Reduction in diameter at point of rupture	do... .134
Reduction in area after rupture, per centum of original section	41.9
Position of rupture	$\frac{1}{8}$ inch from middle of stem
Character of broken surface	silky, 50 per centum; granular, 50 per centum
Elongation of inch sections	".16, ".35*, ".13

No. 1005.

Marks, $\frac{8 T_{35}}{M T_2 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000067	.000067	0.	.....	
2,500	10,000	.000200	.000133	0.	.....	
3,750	15,000	.000367	.000167	0.	.....	
5,000	20,000	.000533	.000166	0.	.....	
6,250	25,000	.000700	.000167	0.	.....	
7,500	30,000	.000867	.000167	0.	.....	
8,750	35,000	.001033	.000166	0.	.....	
10,000	40,000	.001200	.000167	0.	.....	
10,250	41,000	.001233	.000033			Elastic limit.
10,500	42,000	.001300	.000067	.....	.....	
10,750	43,000	.001367	.000067	.....	.....	
11,000	44,000	.001433	.000066	.....	.....	
11,250	45,000	.003333	.001900	.001700	.001700	
11,500	46,000	.004500	.001167	.....	.....	
11,750	47,000	.005800	.001300	.....	.....	
12,000	48,000	.006667	.000867	.....	.....	
12,250	49,000	.007733	.001066	.....	.....	
12,500	50,000	.009133	.001400	.007300	.005600	
12,750	51,000	.009767	.000634			
13,000	52,000	.010800	.001033	.....	.....	
13,250	53,000	.012067	.001267	.....	.....	
13,500	54,000	.013433	.001366	.....	.....	
13,750	55,000	.014333	.000900	.....	.....	
14,000	56,000	.015933	.001600	.....	.....	
14,250	57,000	.017267	.001334	.....	.....	
14,500	58,000	.018667	.001400	.....	.....	
14,750	59,000	.020067	.001400	.....	.....	
15,000	60,000	.021833	.001766			
15,500	62,000	.025033	.003200	.....	.....	
16,000	64,000	.029000	.003967	.....	.....	
16,500	66,000	.033167	.004167	.....	.....	
17,000	68,000	.037600	.004433	.....	.....	
17,500	70,000	.043333	.005733	.....	.....	
18,000	72,000	.051000	.007667	.....	.....	
18,500	74,000	.060667	.009667	.....	.....	
19,000	76,000	.074667	.014000	.....	.....	
19,500	78,000	.1000	.025333			Tensile strength.
19,800	79,200	.1367	.0367	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	79,200
Elastic limit per square inch of original section.....	do...	44,000
Elongation per inch after rupture.....	inch..	0.2633
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	at middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	" .17, ".44*, ".18	

No. 1006.

Marks, $\frac{8}{M} T_{35}$ Diameter, $\frac{1}{4}$.564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	-----	
2,500	10,000	.000267	.000167	0.	-----	
3,750	15,000	.000433	.000166	0.	-----	
5,000	20,000	.000600	.000167	0.	-----	
6,250	25,000	.000767	.000167	.000033	.000033	
7,500	30,000	.000933	.000166	.000033	0.	
8,750	35,000	.001100	.000167	.000033	0.	
10,000	40,000	.001267	.000167	.000067	.000034	
10,250	41,000	.001400	.000133	-----	-----	Elastic limit.
10,500	42,000	.002633	.001233	-----	-----	
10,750	43,000	.004667	.002034	-----	-----	
11,000	44,000	.005933	.001266	-----	-----	
11,250	45,000	.006767	.000834	.005267	.005200	
11,500	46,000	.008433	.001666	-----	-----	
11,750	47,000	.009000	.000567	-----	-----	
12,000	48,000	.010233	.001233	-----	-----	
12,250	49,000	.011067	.000834	-----	-----	
12,500	50,000	.012700	.001633	.010933	.005666	
12,750	51,000	.013400	.000700	-----	-----	
13,000	52,000	.014233	.000833	-----	-----	
13,250	53,000	.015667	.001434	-----	-----	
13,500	54,000	.017500	.001833	-----	-----	
13,750	55,000	.018933	.001433	-----	-----	
14,000	56,000	.020033	.001100	-----	-----	
14,250	57,000	.021567	.001534	-----	-----	
14,500	58,000	.023267	.001700	-----	-----	
14,750	59,000	.024667	.001400	-----	-----	
15,000	60,000	.026667	.002000	-----	-----	
15,500	62,000	.030333	.003666	-----	-----	
16,000	64,000	.034500	.004167	-----	-----	
16,500	66,000	.039933	.005433	-----	-----	
17,000	68,000	.046500	.006567	-----	-----	
17,500	70,000	.053833	.007333	-----	-----	
18,000	72,000	.063333	.009500	-----	-----	
18,500	74,000	.0767	.013367	-----	-----	
19,000	76,000	.1033	.0266	-----	-----	
19,370	77,480	.1767	.0734	-----	-----	
16,900	-----	-----	-----	-----	-----	Tensile strength. Load at time of rupture.

General summary.

Tensile strength per square inch of original section.....	pounds..	77,480
Elastic limit per square inch of original section.....	do ..	40,000
Elongation per inch after rupture.....	inch..	0.2633
Elongation per inch under strain at elastic limit.....	do...	.001267
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	$\frac{7}{8}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	" .40* " .21 " .18	

No. 1007.

Marks, $\frac{8}{B} T_{36}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000800	.000200	0.	.....	
7,500	30,000	.000967	.000167	.000033	.000033	
8,750	35,000	.001100	.000133	.000033	0.	
9,250	37,000	.001233	.000133	.....	.....	
9,500	38,000	.001267	.000034			Elastic limit.
9,750	39,000	.003567	.002300	.....	.....	
10,000	40,000	.004800	.001233	.003433	.000400	
10,250	41,000	.005467	.000667	.....	.....	
10,500	42,000	.006967	.001500	.....	.....	
10,750	43,000	.007667	.000700	.....	.....	
11,000	44,000	.009567	.001900	.....	.....	
11,250	45,000	.010767	.001200	.009133	.000700	
11,500	46,000	.011633	.000866	.....	.....	
11,750	47,000	.012700	.001067	.....	.....	
12,000	48,000	.014500	.001800			
12,250	49,000	.015933	.001433	.....	.....	
12,500	50,000	.017467	.001534	.015567	.000434	
12,750	51,000	.018400	.000933	.....	.....	
13,000	52,000	.020000	.001600	.....	.....	
13,250	53,000	.021533	.001533	.....	.....	
13,500	54,000	.023600	.002067	.....	.....	
13,750	55,000	.025500	.001900	.....	.....	
14,000	56,000	.027500	.002000	.....	.....	
14,250	57,000	.029567	.002067			Tensile strength. Load at time of rupture.
14,500	58,000	.032000	.002433	.....	.....	
14,750	59,000	.034333	.002333	.....	.....	
15,000	60,000	.037200	.002867	.....	.....	
15,500	62,000	.043333	.006133	.....	.....	
16,000	64,000	.050000	.006667	.....	.....	
16,500	66,000	.058833	.008833	.....	.....	
17,000	68,000	.071000	.012167	.....	.....	
17,500	70,000	.0900	.0190	.....	.....	
18,000	72,000	.1333	.0433	.....	.....	
18,050	72,200	.1667	.0334	.....	.....	
14,700	.....	.....	.....	.....	.....	

General summary.

Specific gravity.....	7.8577
Hardness.....	11.92
Tensile strength per square inch of original section.....pounds..	72,200
Elastic limit per square inch of original section.....do..	38,000
Elongation per inch after rupture.....inch..	0.2700
Elongation per inch under strain at elastic limit.....do..	.001267
Reduction in diameter at point of rupture.....do..	.184
Reduction in area after rupture, per centum of original section.....	54.6
Position of rupture.....	$\frac{3}{8}$ inch from middle of stem
Character of broken surface.....	silky
Elongation of inch sections.....	".37*, ".32, ".12

No. 1008.

Marks, $\frac{8}{B} T_{36}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000067	.000067	0.	.....	
2,500	10,000	.000233	.000166	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
9,000	36,000	.001067	0.	.....	.....	
9,250	37,000	.001100	.000033	.....	.....	
9,500	38,000	.001133	.000033			Elastic limit.
9,750	39,000	.001167	.000034	.....	.....	
10,000	40,000	.001233	.000066	0.	.....	
10,250	41,000	.001267	.000034	.....	.....	
10,500	42,000	.001300	.000033	.....	.....	
10,750	43,000	.001400	.000100	.....	.....	
11,000	44,000	.005467	.004067	.....	.....	
11,250	45,000	.006433	.000966	.004867	.004867	
11,500	46,000	.007400	.000967	.....	.....	
11,750	47,000	.008200	.000800	.....	.....	
12,000	48,000	.009433	.001233	.....	.....	
12,250	49,000	.010500	.001067	.....	.....	
12,500	50,000	.011800	.001300	.010033	.005166	
12,750	51,000	.012600	.000800	.....	.....	
13,000	52,000	.013333	.000733	.....	.....	
13,250	53,000	.014733	.001400	.....	.....	
13,500	54,000	.016333	.001600	.....	.....	
13,750	55,000	.018000	.001667	.....	.....	
14,000	56,000	.019333	.001333	.....	.....	
14,250	57,000	.021333	.002000	.....	.....	
14,500	58,000	.022333	.001000	.....	.....	
14,750	59,000	.023333	.001000	.....	.....	
15,000	60,000	.025333	.002000	.....	.....	
15,500	62,000	.029000	.003667	.....	.....	
16,000	64,000	.032667	.003667	.....	.....	
16,500	66,000	.037500	.004833	.....	.....	
17,000	68,000	.042667	.005167	.....	.....	
17,500	70,000	.049000	.006333	.....	.....	
18,000	72,000	.057000	.008000	.....	.....	
18,500	74,000	.069000	.012000	.....	.....	
19,000	76,000	.0867	.0177	.....	.....	
19,500	78,000	.1300	.0433	.....	.....	
19,570	78,280	.1600	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	78,28
Elastic limit per square inch of original section.....	do...	42,000
Elongation per inch after rupture.....	inch..	0.2700
Elongation per inch under strain at elastic limit.....	do...	.001300
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....	$\frac{3}{4}$ inch from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".32", ".30", ".19	

No. 1009.

Marks, $\frac{8}{B} \frac{T_{36}}{T_3 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000067	.000067	0.	.....	
2,500	10,000	.000233	.000166	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001070	.000167	0.	.....	
9,000	36,000	.001100	.000033	.....	.....	
9,250	37,000	.001133	.000033	.....	.....	
9,500	38,000	.001167	.000034	.....	.....	
9,750	39,000	.001200	.000032	.....	.....	Elastic limit.
10,000	40,000	.001333	.000133	.000100	.000100	
10,250	41,000	.002667	.001334	.....	.....	
10,500	42,000	.004267	.001600	.....	.....	
10,750	43,000	.005500	.001233	.....	.....	
11,000	44,000	.006600	.001100	.....	.....	
11,250	45,000	.007600	.001000	.005933	.005833	
11,500	46,000	.008833	.001233	.....	.....	
11,750	47,000	.009833	.001000	.....	.....	
12,000	48,000	.011100	.001267	.....	.....	
12,250	49,000	.012467	.001367	.....	.....	
12,500	50,000	.013600	.001133	.011733	.005800	
12,750	51,000	.014500	.000900	.....	.....	
13,000	52,000	.015833	.001333	.....	.....	
13,250	53,000	.017033	.001200	.....	.....	
13,500	54,000	.018867	.001834	.....	.....	
13,750	55,000	.020400	.001533	.....	.....	
14,000	56,000	.022333	.001933	.....	.....	
14,250	57,000	.023733	.001400	.....	.....	
14,500	58,000	.025400	.001667	.....	.....	
14,750	59,000	.027067	.001667	.....	.....	
15,000	60,000	.029267	.002200	.....	.....	
15,500	62,000	.034133	.004866	.....	.....	
16,000	64,000	.038667	.004534	.....	.....	
16,500	66,000	.044667	.006000	.....	.....	
17,000	68,000	.051833	.007166	.....	.....	
17,500	70,000	.061667	.009834	.....	.....	
18,000	72,000	.074000	.012333	.....	.....	
18,500	74,000	.1033	.0293	.....	.....	
18,860	75,440	.1533	.0500	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	75,440
Elastic limit per square inch of original section	do...	39,000
Elongation per inch after rupture	inch..	0.2467
Elongation per inch under strain at elastic limit	do...	.001200
Reduction in diameter at point of rupture	do...	.144
Reduction in area after rupture, per centum of original section		44.6
Position of rupture	".60 from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".31*, ".30, ".13	

No. 1010.

Marks, $\frac{8}{M} \frac{T_{36}}{T_1 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000633	.000200	.000033	.000033	
6,250	25,000	.000767	.000134	.....	.....	
7,500	30,000	.000933	.000166	.....	.....	
8,750	35,000	.001100	.000167	.....	.....	
9,500	38,000	.001133	.000033	.....	.....	
9,750	39,000	.001200	.000067	.....	.....	
10,000	40,000	.001367	.000167	.000133	.000100	Elastic limit.
10,250	41,000	.001400	.000033	.....	.....	
10,500	42,000	.001467	.000067	.....	.....	
10,750	43,000	.001633	.000166	.....	.....	
11,000	44,000	.002167	.000534	.....	.....	
11,250	45,000	.005467	.003300	.003933	.003800	
11,500	46,000	.006067	.000600	.....	.....	
11,750	47,000	.007200	.000133	.....	.....	
12,000	48,000	.008700	.001500	.....	.....	
12,250	49,000	.009433	.000733	.....	.....	
12,500	50,000	.010933	.001500	.009167	.005234	
12,750	51,000	.011733	.000800	.....	.....	
13,000	52,000	.012433	.000700	.....	.....	
13,250	53,000	.013533	.001100	.....	.....	
13,500	54,000	.015133	.001600	.....	.....	
13,750	55,000	.016167	.001034	.....	.....	
14,000	56,000	.018000	.001833	.....	.....	
14,250	57,000	.019333	.001333	.....	.....	
14,500	58,000	.020733	.001400	.....	.....	
14,750	59,000	.021933	.001200	.....	.....	
15,000	60,000	.023600	.001667			Tensile strength.
15,500	62,000	.027000	.003400	.....	.....	
16,000	64,000	.031000	.004000	.....	.....	
16,500	66,000	.035333	.004333	.....	.....	
17,000	68,000	.040200	.004867	.....	.....	
17,500	70,000	.047267	.007067	.....	.....	
18,000	72,000	.056167	.010900	.....	.....	
18,500	74,000	.065667	.009500	.....	.....	
19,000	76,000	.0800	.014333	.....	.....	
19,500	78,000	.1067	.0267	.....	.....	
19,610	78,440	.1533	.0466	.....	.....	

General summary.

Specific gravity.....	7.8553
Hardness.....	13.36
Tensile strength per square inch of original section..... pounds..	78,440
Elastic limit per square inch of original section..... do...	42,000
Elongation per inch after rupture..... inch..	0.2167
Elongation per inch under strain at elastic limit..... do...	.001467
Reduction in diameter at point of rupture..... do...	.104
Reduction in area after rupture, per centum of original section.....	33.5
Position of rupture.....	1 inch from neck
Character of broken surface.....	granular, 60 per centum; silky, 40 per centum
Elongation of inch sections.....	".33*, ".19, ".13

No. 1011.

Marks, $\frac{8}{M} T_{36}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Persquare inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000067	.000067	0.	.....	
2,500	10,000	.000233	.000166	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
9,000	36,000	.001100	.000033	.....	.....	
9,250	37,000	.001133	.000033	.....	.....	
9,500	38,000	.001200	.000067	.....	.....	
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001300	.000067	.000067	.000067	
10,250	41,000	.001367	.000067	.....	.....	
10,500	42,000	.001433	.000066			Elastic limit.
10,750	43,000	.001500	.000067	.....	.....	
11,000	44,000	.003733	.002233	.....	.....	
11,250	45,000	.005400	.001667	.003800	.003733	
11,500	46,000	.006000	.000600	.....	.....	
11,750	47,000	.007267	.001267	.....	.....	
12,000	48,000	.008433	.001166	.....	.....	
12,250	49,000	.009333	.000900	.....	.....	
12,500	50,000	.010667	.001334	.008767	.004967	
12,750	51,000	.011333	.000666	.....	.....	
13,000	52,000	.012467	.001134	.....	.....	
13,250	53,000	.013667	.001200	.....	.....	
13,500	54,000	.015100	.001433	.....	.....	
13,750	55,000	.016233	.001133	.....	.....	
14,000	56,000	.017567	.001334			Tensile strength. Load at time of rupture.
14,250	57,000	.019000	.001433	.....	.....	
14,500	58,000	.020400	.001400	.....	.....	
14,750	59,000	.021733	.001333	.....	.....	
15,000	60,000	.023600	.001867	.....	.....	
15,500	62,000	.026200	.002600	.....	.....	
16,000	64,000	.030167	.003967	.....	.....	
16,500	66,000	.034167	.004000	.....	.....	
17,000	68,000	.038667	.004500	.....	.....	
17,500	70,000	.044133	.005466	.....	.....	
18,000	72,000	.050833	.006700	.....	.....	
18,500	74,000	.060167	.009334	.....	.....	
19,000	76,000	.072667	.012500	.....	.....	
19,500	78,000	.0933	.020633	.....	.....	
19,890	79,560	.1567	.0634	.....	.....	
17,100	.....	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	79,560
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	0.2700
Elongation per inch under strain at elastic limit.....	do...	.001500
Reduction in diameter at point of rupture.....	do...	.154
Reduction in area after rupture, per centum of original section.....		47.2
Position of rupture.....	".10 from middle of stem	
Character of broken surface.....	silky; interspersed with fine granulation	
Elongation of inch sections.....	".18, ".44* ".19	

No. 1012.

Marks, $\frac{8}{M} T_{36}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	.000033	.000033	
7,500	30,000	.000933	.000166	.000033	0.	
8,750	35,000	.001167	.000234	.000067	.000034	
9,000	36,000	.001167	0.	.....	.....	
9,250	37,000	.001233	.000066			Elastic limit
9,500	38,000	.001300	.000067	.....	.....	
9,750	39,000	.001333	.000033	.....	.....	
10,000	40,000	.001400	.000067	.000100	.000033	
10,250	41,000	.001467	.000067	.....	.....	
10,500	42,000	.001633	.000066	.....	.....	
10,750	43,000	.002767	.001134	.....	.....	
11,000	44,000	.005167	.002400	.....	.....	
11,250	45,000	.006600	.001433	.004933	.004833	
11,500	46,000	.007400	.000800	.....	.....	
11,750	47,000	.008167	.000767	.....	.....	
12,000	48,000	.009667	.001500	.....	.....	
12,250	49,000	.011267	.001600	.....	.....	
12,500	50,000	.012100	.000833	.010300	.005367	
12,750	51,000	.012700	.000600	.....	.....	
13,000	52,000	.013667	.000967	.....	.....	
13,250	53,000	.014933	.001266	.....	.....	
13,500	54,000	.016667	.001734	.....	.....	
13,750	55,000	.018167	.001500	.....	.....	
14,000	56,000	.019667	.001500			Tensile strength.
14,250	57,000	.020833	.001166	.....	.....	
14,500	58,000	.022667	.001834	.....	.....	
14,750	59,000	.023933	.001266	.....	.....	
15,000	60,000	.025667	.001734	.....	.....	
15,500	62,000	.029333	.003666	.....	.....	
16,000	64,000	.033833	.004500	.....	.....	
16,500	66,000	.038000	.004167	.....	.....	
17,000	68,000	.043667	.005667	.....	.....	
17,500	70,000	.051167	.007500	.....	.....	
18,000	72,000	.060167	.009000	.....	.....	
18,500	74,000	.074667	.014500	.....	.....	
19,500	76,000	.0967	.022330	.....	.....	
19,350	77,400	.1600	.0633	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	77,400
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch..	0.1967
Elongation per inch under strain at elastic limit	do...	.001467
Reduction in diameter at point of rupture	do...	.074
Reduction in area after rupture, per centum of original section		24.6
Position of rupture		1½ inches from neck
Character of broken surface		granular; dull spot at circumference
Elongation of inch sections		".18, ".22, ".3"

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92	92	92	92	92	92
93	93	93	93	93	93
94	94	94	94	94	94
95	95	95	95	95	95
96	96	96	96	96	96
97	97	97	97	97	97
98	98	98	98	98	98
99	99	99	99	99	99
100	100	100	100	100	100

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No. 3122

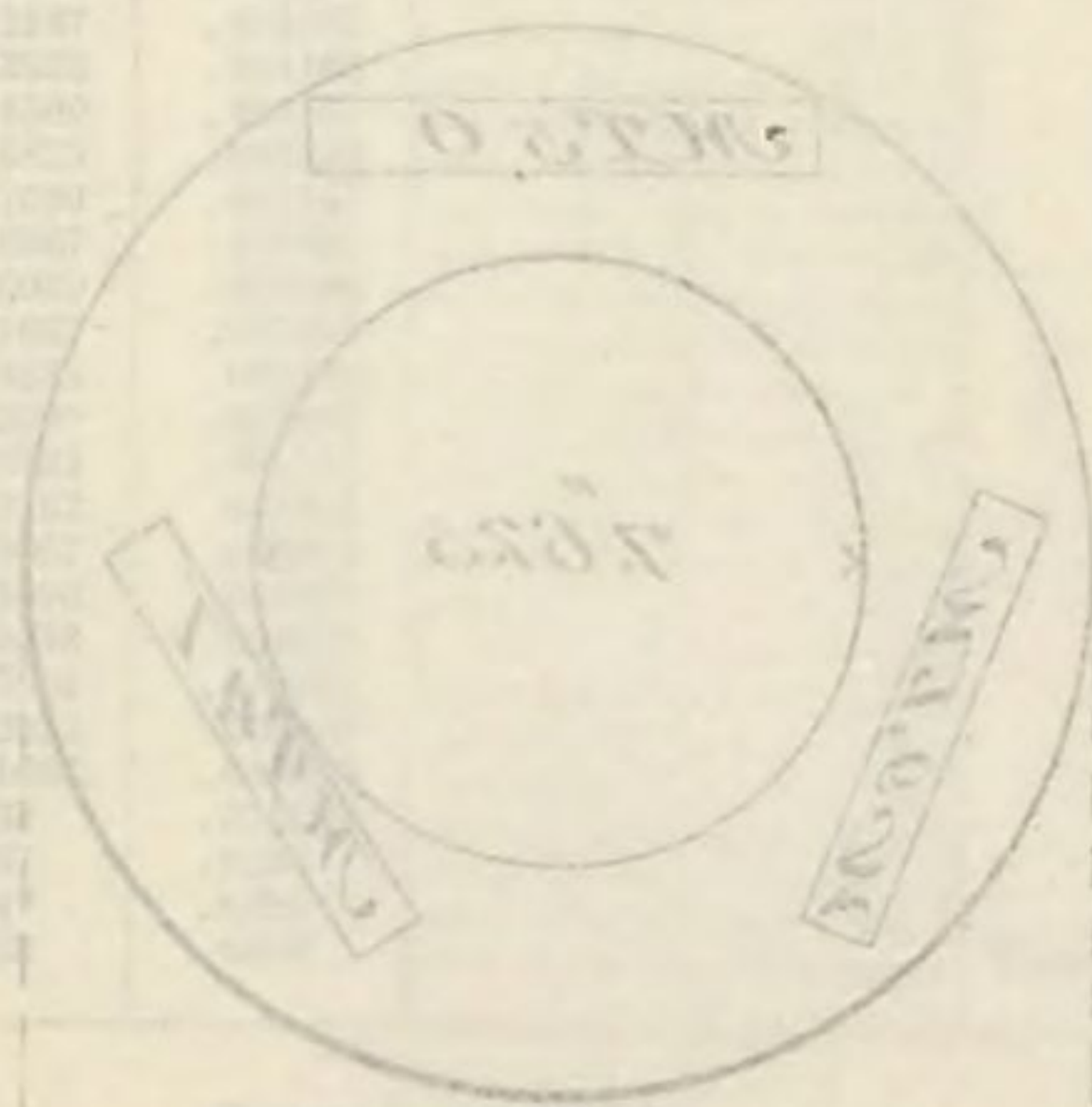
Mark, $\frac{1}{2}$ in.

Diameter, $\frac{1}{2}$ in.

Sectional area, 2.5 square inch.

Table No. 3122 8" converted Rifle

Feet	Per square foot	Per inch	Per inch	Per inch	Per inch	Per inch
1	1.000	1.000	1.000	1.000	1.000	1.000
2	2.000	2.000	2.000	2.000	2.000	2.000
3	3.000	3.000	3.000	3.000	3.000	3.000
4	4.000	4.000	4.000	4.000	4.000	4.000
5	5.000	5.000	5.000	5.000	5.000	5.000
6	6.000	6.000	6.000	6.000	6.000	6.000
7	7.000	7.000	7.000	7.000	7.000	7.000
8	8.000	8.000	8.000	8.000	8.000	8.000
9	9.000	9.000	9.000	9.000	9.000	9.000
10	10.000	10.000	10.000	10.000	10.000	10.000
11	11.000	11.000	11.000	11.000	11.000	11.000
12	12.000	12.000	12.000	12.000	12.000	12.000
13	13.000	13.000	13.000	13.000	13.000	13.000
14	14.000	14.000	14.000	14.000	14.000	14.000
15	15.000	15.000	15.000	15.000	15.000	15.000
16	16.000	16.000	16.000	16.000	16.000	16.000
17	17.000	17.000	17.000	17.000	17.000	17.000
18	18.000	18.000	18.000	18.000	18.000	18.000
19	19.000	19.000	19.000	19.000	19.000	19.000
20	20.000	20.000	20.000	20.000	20.000	20.000
21	21.000	21.000	21.000	21.000	21.000	21.000
22	22.000	22.000	22.000	22.000	22.000	22.000
23	23.000	23.000	23.000	23.000	23.000	23.000
24	24.000	24.000	24.000	24.000	24.000	24.000
25	25.000	25.000	25.000	25.000	25.000	25.000
26	26.000	26.000	26.000	26.000	26.000	26.000
27	27.000	27.000	27.000	27.000	27.000	27.000
28	28.000	28.000	28.000	28.000	28.000	28.000
29	29.000	29.000	29.000	29.000	29.000	29.000
30	30.000	30.000	30.000	30.000	30.000	30.000
31	31.000	31.000	31.000	31.000	31.000	31.000
32	32.000	32.000	32.000	32.000	32.000	32.000
33	33.000	33.000	33.000	33.000	33.000	33.000
34	34.000	34.000	34.000	34.000	34.000	34.000
35	35.000	35.000	35.000	35.000	35.000	35.000
36	36.000	36.000	36.000	36.000	36.000	36.000
37	37.000	37.000	37.000	37.000	37.000	37.000
38	38.000	38.000	38.000	38.000	38.000	38.000
39	39.000	39.000	39.000	39.000	39.000	39.000
40	40.000	40.000	40.000	40.000	40.000	40.000
41	41.000	41.000	41.000	41.000	41.000	41.000
42	42.000	42.000	42.000	42.000	42.000	42.000
43	43.000	43.000	43.000	43.000	43.000	43.000
44	44.000	44.000	44.000	44.000	44.000	44.000
45	45.000	45.000	45.000	45.000	45.000	45.000
46	46.000	46.000	46.000	46.000	46.000	46.000
47	47.000	47.000	47.000	47.000	47.000	47.000
48	48.000	48.000	48.000	48.000	48.000	48.000
49	49.000	49.000	49.000	49.000	49.000	49.000
50	50.000	50.000	50.000	50.000	50.000	50.000

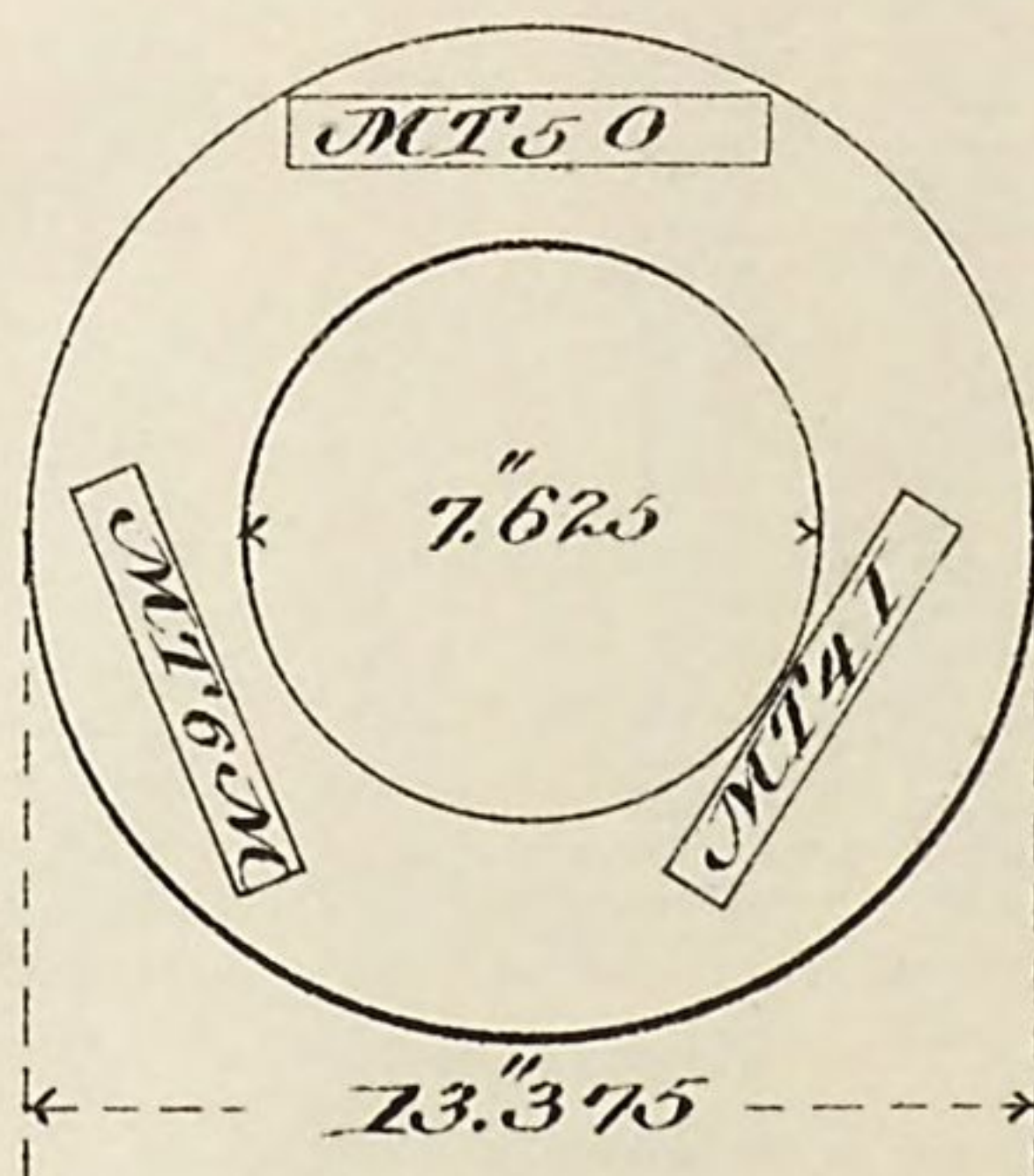


H EX 31

H EX 31

Tube No. 36 8" converted Rifle

Additional specimens



H Ex 3/ 49 2

No. 2122.

Marks, $\frac{8}{M} T_{36}$ Diameter, $\frac{11}{16}$ inch.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000467	.000134	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001267	.000067	.....	.....	Elastic limit.
9,750	39,000	.001367	.000100	.....	.....	
10,000	40,000	.002567	.001200	.....	.....	
10,250	41,000	.003567	.001000	.....	.....	
10,500	42,000	.005733	.002166	.....	.....	
10,750	43,000	.006667	.000934	.....	.....	
11,000	44,000	.007867	.001200	.....	.....	
11,250	45,000	.009000	.001133	.....	.....	
11,500	46,000	.010167	.001167	.....	.....	
11,750	47,000	.011100	.000933	.....	.....	
12,000	48,000	.012167	.001067	.....	.....	
12,250	49,000	.013333	.001166	.....	.....	
12,500	50,000	.014500	.001167	.....	.....	
12,750	51,000	.015833	.001333	.....	.....	
13,000	52,000	.017000	.001167	.....	.....	
13,250	53,000	.018367	.001367	.....	.....	
13,500	54,000	.020000	.001633	.....	.....	
13,750	55,000	.021667	.001667	.....	.....	
14,000	56,000	.023333	.001666	.....	.....	
14,250	57,000	.025000	.001667	.....	.....	
14,500	58,000	.026333	.001333	.....	.....	
14,750	59,000	.028167	.001834	.....	.....	
15,000	60,000	.030667	.002500	.....	.....	
15,500	62,000	.035000	.004333	.....	.....	
16,000	64,000	.039333	.004333	.....	.....	
16,500	66,000	.045500	.006167	.....	.....	
17,000	68,000	.052333	.006833	.....	.....	
17,500	70,000	.061667	.009334	.....	.....	
18,000	72,000	.0733	.011633	.....	.....	
18,500	74,000	.0967	.0234	.....	.....	
19,000	76,000	.1067	.0100	.....	.....	
19,840	79,360	.1633	.0566	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	79,360
Elastic limit per square inch of original section	do...	38,000
Elongation per inch after rupture	inch..	0.2300
Elongation per inch under strain at elastic limit	do...	.001267
Reduction in diameter at point of rupture	do...	.124
Reduction in area after rupture, per centum of original section		39.2
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface	silky, 90 per centum; granular at circumference, 10 per cent	
Elongation of inch sections	".37*, ".18, ".14.	

H. Ex. 31—49

No. 2123.

Marks, $\frac{8}{M} T_{\frac{36}{5}} O$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001033	.000100	0.	.....	
9,000	36,000	.001100	.000067	.....	.....	
9,250	37,000	.001133	.000033			Elastic limit.
9,500	38,000	.001200	.000067	.....	.....	
9,750	39,000	.001300	.000100	.....	.....	
10,000	40,000	.001933	.000633	.....	.....	
10,250	41,000	.002667	.000734	.....	.....	
10,500	42,000	.004933	.002266	.....	.....	
10,750	43,000	.006000	.001067	.....	.....	
11,000	44,000	.007133	.001133	.....	.....	
11,250	45,000	.008067	.000934	.....	.....	
11,500	46,000	.009333	.001266	.....	.....	
11,750	47,000	.010233	.000900	.....	.....	
12,000	48,000	.011367	.001134	.....	.....	
12,250	49,000	.012667	.001300	.....	.....	
12,500	50,000	.013667	.001000	.....	.....	
12,750	51,000	.014667	.001000	.....	.....	
13,000	52,000	.016000	.001333	.....	.....	
13,250	53,000	.017067	.001067	.....	.....	
13,500	54,000	.018500	.001433	.....	.....	
13,750	55,000	.019833	.001333	.....	.....	
14,000	56,000	.021400	.001567	.....	.....	
14,250	57,000	.022900	.001500	.....	.....	
14,500	58,000	.024833	.001933	.....	.....	
14,750	59,000	.026667	.001834	.....	.....	
15,000	60,000	.028233	.001566	.....	.....	
15,500	62,000	.032267	.004034	.....	.....	
16,000	64,000	.036667	.004400	.....	.....	
16,500	66,000	.042500	.005833	.....	.....	
17,000	68,000	.048667	.006167	.....	.....	
17,500	70,000	.056167	.007500	.....	.....	
18,000	72,000	.056667	.010500	.....	.....	
18,500	74,000	.0833	.016633	.....	.....	
19,000	76,000	.1100	.0267	.....	.....	
19,250	77,000	.1500	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	77,000
Elastic limit per square inch of original section.....	do...	38,000
Elongation per inch after rupture.....	inch..	0.2233
Elongation per inch under strain at elastic limit.....	do...	.001200
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".38*, ".16, ".13	

No. 2124.

Marks, $\frac{8 T_{36}}{M T_6 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000467	.000134	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001300	.000067	.....	.....	
10,000	40,000	.001367	.000067	.000100	.000100	Elastic limit.
10,250	41,000	.002700	.001333	.....	.....	
10,500	42,000	.004667	.001967	.....	.....	
10,750	43,000	.006100	.001433	.....	.....	
11,000	44,000	.007300	.001200	.....	.....	
11,250	45,000	.008400	.001100	.....	.....	
11,500	46,000	.009567	.001167	.....	.....	
11,750	47,000	.010667	.001100	.....	.....	
12,000	48,000	.011700	.001033	.....	.....	
12,250	49,000	.012833	.001133	.....	.....	
12,500	50,000	.014000	.001167	.....	.....	
12,750	51,000	.015233	.001233	.....	.....	
13,000	52,000	.016667	.001434	.....	.....	
13,250	53,000	.018000	.001333	.....	.....	
13,500	54,000	.019333	.001333	.....	.....	
13,750	55,000	.020833	.001500	.....	.....	
14,000	56,000	.022500	.001667	.....	.....	
14,250	57,000	.024167	.001667	.....	.....	
14,500	58,000	.025833	.001666	.....	.....	
14,750	59,000	.028000	.002167	.....	.....	
15,000	60,000	.029933	.001933	.....	.....	
15,500	62,000	.033333	.003400	.....	.....	
16,000	64,000	.038333	.005000	.....	.....	
16,500	66,000	.044167	.005834	.....	.....	
17,000	68,000	.050667	.006500	.....	.....	
17,500	70,000	.060000	.009333	.....	.....	
18,000	72,000	.0700	.0100	.....	.....	
18,500	74,000	.0933	.0233	.....	.....	
19,000	76,000	.1367	.0134			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	76,000
Elastic limit per square inch of original section.....	do...	40,000
Elongation per inch after rupture.....	inch..	0.2233
Elongation per inch under strain at elastic limit.....	do...	.001367
Reduction in diameter at point of rupture.....	do...	.134
Reduction in area after rupture, per centum of original section.....		41.9
Position of rupture.....	$\frac{1}{2}$ inch from middle of stem	
Character of broken surface.....	silky; with slight granulation	
Elongation of inch sections.....	".23, ".33*, ".11	

No. 992.

Marks, $\frac{8}{B} T_{37}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000067	.000067	0.	.....	
2,500	10,000	.000167	.000100	0.	.....	
3,750	15,000	.000367	.000200	0.	.....	
5,000	20,000	.000533	.000166	0.	.....	
6,250	25,000	.000700	.000167	0.	.....	
7,500	30,000	.000833	.000133	0.	.....	
8,750	35,000	.001000	.000167	0.	.....	
10,000	40,000	.001200	.000200	0.	.....	
10,250	41,000	.001233	.000033			Elastic limit.
10,500	42,000	.001300	.000067	.....	.....	
10,750	43,000	.001333	.000033	.....	.....	
11,000	44,000	.007200	.005867	.....	.....	
11,250	45,000	.008067	.000867	.006400	.006400	
11,500	46,000	.009000	.000933	.....	.....	
11,750	47,000	.010000	.001000	.....	.....	
12,000	48,000	.011000	.001000	.....	.....	
12,250	49,000	.012133	.001133	.....	.....	
12,500	50,000	.013600	.001467	.011600	.005200	Rested one hour under initial load.
12,750	51,000	.014267	.000667	.....	.....	
13,000	52,000	.015733	.001466	.....	.....	
13,250	53,000	.016933	.001200	.....	.....	
13,500	54,000	.018600	.001667	.....	.....	
13,750	55,000	.019700	.001100	.....	.....	
14,000	56,000	.021433	.001733	.....	.....	
14,250	57,000	.022733	.001300	.....	.....	
14,500	58,000	.024333	.001600	.....	.....	
14,750	59,000	.025733	.001400	.....	.....	
15,000	60,000	.027667	.001934			Tensile strength.
15,500	62,000	.031333	.003666	.....	.....	
16,000	64,000	.034700	.003367	.....	.....	
16,500	66,000	.039500	.004800	.....	.....	
17,000	68,000	.045333	.005833	.....	.....	
17,500	70,000	.053733	.008400	.....	.....	
18,000	72,000	.062667	.008934	.....	.....	
18,500	74,000	.072000	.009333	.....	.....	
19,000	76,000	.0933	.0213	.....	.....	
19,440	77,760	.....	.....	.....	.....	

General summary.

Specific gravity.....	7.8494
Hardness.....	13.46
Tensile strength per square inch of original section..... pounds..	77,760
Elastic limit per square inch of original section..... do..	43,000
Elongation per inch after rupture..... inch..	0.2067
Elongation per inch under strain at elastic limit..... do..	.001333
Reduction in diameter at point of rupture..... do..	.084
Reduction in area after rupture, per centum of original section.....	27.6
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem
Character of broken surface.....	granular; radiating from a dull spot at the circumference
Elongation of inch sections.....	".18, ".29*, ".15

No. 992½.

Marks, $\frac{8}{B} \frac{T}{T_2} \frac{37}{O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000300	.000200	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001167	.000200	.000033	.000033	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033			Elastic limit.
9,500	38,000	.001267	.000034	.....	.....	
9,750	39,000	.007400	.006133	.....	.....	
10,000	40,000	.009167	.001767	.007600	.007567	
10,250	41,000	.009667	.000500	.....	.....	
10,500	42,000	.010333	.000666	.....	.....	
10,750	43,000	.011333	.001000	.....	.....	
11,000	44,000	.012667	.001334	.....	.....	
11,250	45,000	.013667	.001000	.011933	.004333	
11,500	46,000	.014867	.001200			Tensile strength.
11,750	47,000	.015600	.000733	.....	.....	
12,000	48,000	.016933	.001333	.....	.....	
12,250	49,000	.018000	.001067	.....	.....	
12,500	50,000	.019300	.001300	.017300	.005367	
12,750	51,000	.020267	.000967	.....	.....	
13,000	52,000	.021567	.001300	.....	.....	
13,250	53,000	.023000	.001433	.....	.....	
13,500	54,000	.024500	.001500	.....	.....	
13,750	55,000	.026333	.001833	.....	.....	
14,000	56,000	.027767	.001434			Tensile strength.
14,250	57,000	.029333	.001566	.....	.....	
14,500	58,000	.031200	.001867	.....	.....	
14,750	59,000	.032767	.001567	.....	.....	
15,000	60,000	.035000	.002233	.....	.....	
15,500	62,000	.039867	.004867	.....	.....	
16,000	64,000	.045167	.005300	.....	.....	
16,500	66,000	.050000	.004833	.....	.....	
17,000	68,000	.056667	.006667	.....	.....	
17,500	70,000	.066000	.009333	.....	.....	
18,000	72,000	.078167	.012167			Tensile strength.
18,500	74,000	.1000	.021833	.....	.....	
19,000	76,000	.1267	.0267	.....	.....	
19,130	76,520	.1733	.0466	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	76,520
Elastic limit per square inch of original section	do...	38,000
Elongation per inch after rupture.....	inch..	0.2167
Elongation per inch under strain at elastic limit	do...	.001267
Reduction in diameter at point of rupture.....	do...	.114
Reduction in area after rupture, per centum of original section		36.4
Position of rupture	".3 from middle of stem	
Character of broken surface	silky, 90 per centum; granular, 10 per centum	
Elongation of inch sections.....	".17, ".33*, ".15	

No. 993.

Marks, ^{8 T₃₇}_{B T₃ M}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000233	.000100	0.	.....	
3,750	15,000	.000433	.000200	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001067	.000134	0.	.....	
9,000	36,000	.001133	.000066			Elastic limit.
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001300	.000133	.....	.....	
9,750	39,000	.007967	.006667	.....	.....	
10,000	40,000	.009033	.001066	.007400	.007400	
10,250	41,000	.009833	.000800	.....	.....	
10,500	42,000	.010267	.000434	.....	.....	
10,750	43,000	.011000	.000733	.....	.....	
11,000	44,000	.012300	.001300			Tensile strength.
11,250	45,000	.013433	.001133	.....	.....	
11,500	46,000	.014367	.000934	.....	.....	
11,750	47,000	.015367	.001000	.....	.....	
12,000	48,000	.016533	.001166	.....	.....	
12,250	49,000	.017667	.001134	.....	.....	
12,500	50,000	.018933	.001266	.....	.....	
12,750	51,000	.020000	.001067	.....	.....	
13,000	52,000	.021500	.001500	.....	.....	
13,250	53,000	.022767	.001267	.....	.....	
13,500	54,000	.024267	.001500	.....	.....	
13,750	55,000	.025667	.001400	.....	.....	
14,000	56,000	.027067	.001400	.....	.....	
14,250	57,000	.028600	.001533	.....	.....	
14,500	58,000	.030367	.001767	.....	.....	
14,750	59,000	.032333	.001966	.....	.....	
15,000	60,000	.034233	.001900	.....	.....	
15,500	62,000	.038100	.003867	.....	.....	
16,000	64,000	.042833	.004733	.....	.....	
16,500	66,000	.048000	.005167	.....	.....	
17,000	68,000	.054333	.006333	.....	.....	
17,500	70,000	.061500	.007167	.....	.....	
18,000	72,000	.070833	.009333	.....	.....	
18,500	74,000	.0800	.009167	.....	.....	
19,000	76,000	.1033	.0233	.....	.....	
19,500	78,000	.1333	.0300	.....	.....	
19,540	78,160	.1667	.0334	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	78,160
Elastic limit per square inch of original section.....	do....	37,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do....	.001167
Reduction in diameter at point of rupture.....	do....	.074
Reduction in area after rupture, per centum of original section.....	.....	24.6
Position of rupture.....	.....	".15 from middle of stem
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections.....	.....	".19, ".27*, ".14

No. 994.

Marks, $\frac{8}{M} T_{37}$

Diameter, ".563.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
9,000	36,000	.001100	.000033	.....	.....	
9,250	37,000	.001133	.000033	.....	.....	
9,500	38,000	.001200	.000067			Elastic limit.
9,750	39,000	.001200	0.	.....	.....	
10,000	40,000	.001233	.000033	0.	.....	
10,250	41,000	.001233	0.	.....	.....	
10,500	42,000	.001333	.000100	.....	.....	
10,750	43,000	.005333	.004000	.....	.....	
11,000	44,000	.009000	.003667	.....	.....	
11,250	45,000	.010000	.001000	.008233	.008233	
11,500	46,000	.010833	.000833	.....	.....	
11,750	47,000	.011633	.000800	.....	.....	
12,000	48,000	.012867	.001234			
12,250	49,000	.013933	.001066	.....	.....	
12,500	50,000	.015300	.001367	.013400	.005167	
12,750	51,000	.015967	.000667	.....	.....	
13,000	52,000	.016833	.000866	.....	.....	
13,250	53,000	.018100	.001267	.....	.....	
13,500	54,000	.019533	.001433	.....	.....	
13,750	55,000	.020833	.001300	.....	.....	
14,000	56,000	.022667	.001834	.....	.....	
14,250	57,000	.024000	.001333	.....	.....	
14,500	58,000	.025333	.001333			Tensile strength.
14,750	59,000	.026667	.001334	.....	.....	
15,000	60,000	.028567	.001900	.....	.....	
15,500	62,000	.032067	.003500	.....	.....	
16,000	64,000	.036000	.003933	.....	.....	
16,500	66,000	.040433	.004433	.....	.....	
17,000	68,000	.045067	.004634	.....	.....	
17,500	70,000	.052500	.007433	.....	.....	
18,000	72,000	.059333	.006833	.....	.....	
18,500	74,000	.069500	.010167	.....	.....	
19,000	76,000	.0867	.0172	.....	.....	
19,500	78,000	.1067	.0200	.....	.....	
19,820	79,280	.1733	.0666	.....	.....	

General summary.

Specific gravity.....	7.8481
Hardness.....	12.66
Tensile strength per square inch of original section..... pounds..	79,280
Elastic limit per square inch of original section..... do..	41,000
Elongation per inch after rupture..... inch..	0.1733
Elongation per inch under strain at elastic limit..... do..	.001233
Reduction in diameter at point of rupture..... do..	.053
Reduction in area after rupture, per centum of original section.....	18.3
Position of rupture.....	$\frac{1}{2}$ inch from neck
Character of broken surface.....	granular; radiating from a dull spot at the circumference
Elongation of inch sections.....	".20", ".18", ".14

No. 995.

Marks, $\frac{8 T_{37}}{M T_2 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
9,000	36,000	.001133	.000066	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001200	.000033	.....	.....	
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001333	.000100	.000033	.000033	Elastic limit.
10,250	41,000	.001400	.000067	.....	.....	
10,500	42,000	.011000	.009600	.....	.....	
10,750	43,000	.011667	.000667	.....	.....	
11,000	44,000	.013133	.001466	.....	.....	
11,250	45,000	.013600	.000467	.011800	.011767	
11,500	46,000	.014500	.000900	.....	.....	
11,750	47,000	.015600	.001100	.....	.....	
12,000	48,000	.016533	.000933	.....	.....	
12,250	49,000	.017867	.001334	.....	.....	
12,500	50,000	.019333	.001466	.017300	.005500	
12,750	51,000	.019900	.000567	.....	.....	
13,000	52,000	.020667	.000767	.....	.....	
13,250	53,000	.022333	.001666	.....	.....	
13,500	54,000	.024267	.001934	.....	.....	
13,750	55,000	.026000	.001733			Tensile strength.
14,000	56,000	.027500	.001500	.....	.....	
14,250	57,000	.028833	.001333	.....	.....	
14,500	58,000	.030600	.001767	.....	.....	
14,750	59,000	.032167	.001567	.....	.....	
15,000	60,000	.034367	.002200	.....	.....	
15,500	62,000	.037500	.003133	.....	.....	
16,000	64,000	.042933	.005433	.....	.....	
16,500	66,000	.048167	.005234	.....	.....	
17,000	68,000	.055333	.007166	.....	.....	
17,500	70,000	.063667	.008334	.....	.....	
18,000	72,000	.073333	.009666	.....	.....	
18,500	74,000	.0867	.013367	.....	.....	
19,000	76,000	.1067	.0200	.....	.....	
19,490	77,960	.1933	.0866	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	77,960
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch..	0.3033
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.154
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	at middle of stem	
Character of broken surface	fine silky	
Elongation of inch sections	".22, ".48*, ".21	

No. 996.

Marks, $\frac{8}{M} T_{37} M$
 Diameter, $\frac{11}{16}$ inch.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001200	.000067	.....	.....	
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001267	.000034	.....	.....	
10,000	40,000	.001300	.000033	0.	.....	
10,250	41,000	.001367	.000067	.....	.....	Elastic limit.
10,500	42,000	{ .001433	.000066	.....	.....	
		{ .008700	.007267	.....	.....	
10,750	43,000	.010000	.001300	.....	.....	
11,000	44,000	.011167	.001167	.....	.....	
11,250	45,000	.011667	.000500	.010000	.010000	
11,500	46,000	.012800	.001133	.....	.....	
11,750	47,000	.013500	.000700	.....	.....	
12,000	48,000	.014600	.001100	.....	.....	
12,250	49,000	.015533	.000933	.....	.....	
12,500	50,000	.016733	.001200	.014700	.004700	
12,750	51,000	.017467	.000734	.....	.....	
13,000	52,000	.018600	.001133	.....	.....	
13,250	53,000	.019500	.000900	.....	.....	
13,500	54,000	.021000	.001500	.....	.....	
13,750	55,000	.022100	.001100	.....	.....	
14,000	56,000	.023667	.001567	.....	.....	
14,250	57,000	.024500	.000833	.....	.....	
14,500	58,000	.026267	.001767	.....	.....	
14,750	59,000	.027367	.001100	.....	.....	
15,000	60,000	.029000	.001633	.....	.....	
15,500	62,000	.032367	.003367	.....	.....	
16,000	64,000	.036100	.003733	.....	.....	
16,500	66,000	.039833	.003733	.....	.....	
17,000	68,000	.044167	.004334	.....	.....	
17,500	70,000	.049333	.005166	.....	.....	
18,000	72,000	.056667	.007334	.....	.....	
18,500	74,000	.062333	.005666	.....	.....	
19,000	76,000	.071667	.009334	.....	.....	
19,500	78,000	.0833	.011633	.....	.....	
20,000	80,000	.1033	.0200	.....	.....	
20,500	82,000	.1400	.0367	.....	.....	
20,580	82,320	.....	.....	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	82,320
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch..	0.1800
Elongation per inch under strain at elastic limit	do...	.001367
Reduction in diameter at point of rupture	do...	.053
Reduction in area after rupture, per centum of original section		18.2
Position of rupture	"	.3 from neck
Character of broken surface, dul-colored furrowed surface; small granular section near circumference		
Elongation of inch sections	"	.20*, ".16, ".18

[Additional specimens.]

No. 2128.

Marks, $\frac{8}{B} T_{37}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001100	.000133	0.	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001200	.000033			Elastic limit.
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001267	.000034	0.	.....	
10,250	41,000	.001300	.000033	.....	.....	
10,500	42,000	.001367	.000067	.....	.....	
10,750	43,000	.001400	.000033	.....	.....	
11,000	44,000	.010867	.009467	.....	.....	
11,250	45,000	.011533	.000666	.....	.....	
11,500	46,000	.012433	.000900	.....	.....	
11,750	47,000	.013533	.001100	.....	.....	
12,000	48,000	.015133	.001600			Tensile strength.
12,250	49,000	.016367	.001234	.....	.....	
12,500	50,000	.017833	.001466	.....	.....	
13,000	52,000	.021000	.003167	.....	.....	
13,500	54,000	.024500	.003500	.....	.....	
14,000	56,000	.028000	.003500	.....	.....	
14,500	58,000	.032000	.004000	.....	.....	
15,000	60,000	.036667	.004667	.....	.....	
15,500	62,000	.043333	.006666	.....	.....	
16,000	64,000	.051333	.008000	.....	.....	
16,500	66,000	.057667	.006334	.....	.....	
17,000	68,000	.0700	.012333	.....	.....	
17,500	70,000	.0900	.0200	.....	.....	
18,000	72,000	.1267	.0367	.....	.....	
18,060	72,240	.1667	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	72,240
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	.0.2433
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....	1 inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".37*, ".23, ".13	

No. 2129.

Marks, $\frac{8}{B} T_{37} O$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000533	.000133	0.	.....	
6,250	25,000	.000667	.000134	0.	.....	
7,500	30,000	.000867	.000200	0.	.....	
8,750	35,000	.001000	.000133	0.	.....	
10,000	40,000	.001200	.000200	0.	.....	
10,250	41,000	.001233	.000033	.....	.....	
10,500	42,000	.001267	.000034	.....	.....	
10,750	43,000	.001333	.000066	.....	.....	
11,000	44,000	.001367	.000034	.....	.....	
11,250	45,000	.001400	.000033	.000033	.000033	
11,500	46,000	.001433	.000033	.....	.....	
11,750	47,000	.001500	.000067	.....	.....	Elastic limit.
12,000	48,000	.004933	.003433	.....	.....	
12,250	49,000	.015700	.010767	.....	.....	
12,500	50,000	.016800	.001100	.....	.....	
12,750	51,000	.018200	.001400	.....	.....	
13,000	52,000	.019533	.001333	.....	.....	
13,250	53,000	.020433	.000900	.....	.....	
13,500	54,000	.021800	.001367	.....	.....	
13,750	55,000	.023067	.001267	.....	.....	
14,000	56,000	.024667	.001600	.....	.....	
14,250	57,000	.026333	.001666	.....	.....	
14,500	58,000	.028067	.001734	.....	.....	
14,750	59,000	.029667	.001600	.....	.....	
15,000	60,000	.031533	.001866	.....	.....	
15,500	62,000	.035000	.003467	.....	.....	
16,000	64,000	.040000	.005000	.....	.....	
16,500	66,000	.045667	.005667	.....	.....	
17,000	68,000	.051500	.005833	.....	.....	
17,500	70,000	.058333	.006833	.....	.....	
18,000	72,000	.068333	.010000	.....	.....	
18,500	74,000	.0800	.011667	.....	.....	
19,000	76,000	.1000	.0200	.....	.....	
19,500	78,000	.1733	.0733	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	78,000
Elastic limit per square inch of original section	do...	47,000
Elongation per inch after rupture	inch..	0.2333
Elongation per inch under strain at elastic limit	do...	.001500
Reduction in diameter at point of rupture	do...	.125
Reduction in area after rupture, per centum of original section		39.2
Position of rupture		".45 from middle of stem
Character of broken surface	silky; cracks opened in surface of stem	
Elongation of inch sections		".21, ".35*, ".14

No. 2130.

Marks, $\frac{8}{B} T_{37}^M$ Diameter, $\frac{11}{16}$ inch.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000367	.000234	0.	.....	
3,750	15,000	.000533	.000166	0.	.....	
5,000	20,000	.000700	.000167	0.	.....	
6,250	25,000	.000867	.000167	0.	.....	
7,500	30,000	.001033	.000166	.000033	.000033	
8,750	35,000	.001167	.000134	.000033	0.	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033	.....	.....	
9,500	38,000	.001267	.000034	.....	.....	
9,750	39,000	.001300	.000033	.....	.....	
10,000	40,000	.001400	.000100	.000067	.000034	Elastic limit.
10,250	41,000	.001433	.000033	.....	.....	
10,500	42,000	.010333	.008900	.....	.....	
10,750	43,000	.010933	.000600	.....	.....	
11,000	44,000	.012033	.001100	.....	.....	
11,250	45,000	.013033	.001000	.....	.....	
11,500	46,000	.014067	.001034	.....	.....	
11,750	47,000	.015333	.001266	.....	.....	
12,000	48,000	.016733	.001400	.....	.....	
12,250	49,000	.018067	.001334	.....	.....	
12,500	50,000	.019333	.001266	.....	.....	
12,750	51,000	.020733	.001400	.....	.....	
13,000	52,000	.022000	.001267	.....	.....	
13,250	53,000	.023733	.001733	.....	.....	
13,500	54,000	.025433	.001700	.....	.....	
13,750	55,000	.027067	.001634	.....	.....	
14,000	56,000	.029000	.001933	.....	.....	
14,250	57,000	.030800	.001800	.....	.....	
14,500	58,000	.032833	.002033	.....	.....	
14,750	59,000	.034700	.001867	.....	.....	
15,000	60,000	.037433	.002733	.....	.....	
15,500	62,000	.042833	.005400	.....	.....	
16,000	64,000	.049333	.006500	.....	.....	
16,500	66,000	.057000	.007667	.....	.....	
17,000	68,000	.068000	.011000	.....	.....	
17,500	70,000	.0833	.0153	.....	.....	
18,000	72,000	.1033	.0200	.....	.....	
18,490	73,960	.1567	.0534			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	73,960
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch..	0.2133
Elongation per inch under strain at elastic limit	do...	0.001433
Reduction in diameter at point of rupture	do...	.104
Reduction in area after rupture, per centum of original section		33.5
Position of rupture	"	.95 from neck
Character of broken surface, granular, 50 per centum; dull silky, 50 per centum; cracks opened in surface of stem.		
Elongation of inch sections	"	.29*, ".22, ".13

No. 2131.

Marks, $\frac{8}{M} \frac{T_{37}}{T_4 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000433	.000200	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000733	.000133	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
9,000	36,000	.001133	.000066	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001200	.000033			Elastic limit.
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001267	.000034	0.	.....	
10,250	41,000	.001300	.000033	.....	.....	
10,500	42,000	.001333	.000033	.....	.....	
10,750	43,000	.001367	.000034	.....	.....	
11,000	44,000	.015533	.014166	.....	.....	
11,250	45,000	.016233	.000700	.....	.....	
11,500	46,000	.017500	.001267	.....	.....	
11,750	47,000	.018700	.001200	.....	.....	
12,000	48,000	.020133	.001433	.....	.....	
12,250	49,000	.021700	.001567	.....	.....	
12,500	50,000	.023200	.001500	.....	.....	
12,750	51,000	.024867	.001667	.....	.....	
13,000	52,000	.026667	.001800	.....	.....	
13,250	53,000	.028167	.001500	.....	.....	
13,500	54,000	.029867	.001700	.....	.....	
13,750	55,000	.031667	.001800	.....	.....	
14,000	56,000	.034333	.002666	.....	.....	
14,250	57,000	.036367	.002034	.....	.....	
14,500	58,000	.039333	.002966	.....	.....	
14,750	59,000	.042167	.002834	.....	.....	
15,000	60,000	.045500	.003333	.....	.....	
15,500	62,000	.051500	.006000	.....	.....	
16,000	64,000	.059500	.008000	.....	.....	
16,500	66,000	.0700	.0105	.....	.....	
17,000	68,000	.0867	.0167	.....	.....	
17,500	70,000	.1067	.0200	.....	.....	
18,000	72,000	.1600	.0533	.....	.....	
18,030	72,120	.1833	.0233			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	72,120
Elastic limit per square inch of original section	do...	43,000
Elongation per inch after rupture	inch..	0.2767
Elongation per inch under strain at elastic limit	do...	.001367
Reduction in diameter at point of rupture	do...	.154
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	at middle of stem	
Character of broken surface	silky; opened cracks in surface of stem	
Elongation of inch sections	".19, ".44*, ".20	

No. 2132.

Marks, $^8T_{37}$
 MT_{50}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,200	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000300	.000167	0.	-----	
3,750	15,000	.000467	.000167	0.	-----	
5,000	20,000	.000633	.000166	0.	-----	
6,250	25,000	.000800	.000167	0.	-----	
7,500	30,000	.000967	.000167	0.	-----	
8,750	35,000	.001133	.000166	0.	-----	
9,000	36,000	.001167	.000034	-----	-----	
9,250	37,000	.001167	0.	-----	-----	
9,500	38,000	.001200	.000033	-----	-----	Elastic limit.
9,750	39,000	.001233	.000033	-----	-----	
10,000	40,000	.001267	.000034	-----	-----	
10,250	41,000	.001300	.000033	-----	-----	
10,500	42,000	.001367	.000067	-----	-----	
10,750	43,000	.001400	.000033	-----	-----	
11,000	44,000	.011667	.010267	-----	-----	
11,250	45,000	.012000	.000333	-----	-----	
11,500	46,000	.012833	.000833	-----	-----	
11,750	47,000	.013833	.001000	-----	-----	
12,000	48,000	.015400	.001567	-----	-----	
12,250	49,000	.016333	.000933	-----	-----	
12,500	50,000	.018000	.001667	-----	-----	
12,750	51,000	.019333	.001333	-----	-----	
13,000	52,000	.021167	.001834	-----	-----	
13,250	53,000	.022667	.001500	-----	-----	
13,500	54,000	.024333	.001666	-----	-----	
13,750	55,000	.025667	.001334	-----	-----	
14,000	56,000	.027000	.001333	-----	-----	
14,250	57,000	.028733	.001733	-----	-----	
14,500	58,000	.031000	.002267	-----	-----	
14,750	59,000	.032767	.001767	-----	-----	
15,000	60,000	.035267	.002500	-----	-----	
15,500	62,000	.040667	.005400	-----	-----	
16,000	64,000	.046167	.005500	-----	-----	
16,500	66,000	.053000	.006833	-----	-----	
17,000	68,000	.062333	.009333	-----	-----	
17,500	70,000	.074000	.011667	-----	-----	
18,000	72,000	.0967	.0227	-----	-----	
18,500	74,000	.1267	.0300	-----	-----	
18,700	74,800	.1767	.0500	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	74,800
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	0.2833
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.184
Reduction in area after rupture, per centum of original section.....		54.6
Position of rupture.....	".20 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".21, ".47*, ".17	

No. 2133.

Marks, $\frac{8T_{37}}{MT_6M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000300	.000167	0.	-----	
3,750	15,000	.000433	.000133	0.	-----	
5,000	20,000	.000567	.000134	0.	-----	
6,250	25,000	.000733	.000166	0.	-----	
7,500	30,000	.000900	.000167	0.	-----	
8,750	35,000	.001067	.000167	0.	-----	
9,000	36,000	.001100	.000033	-----	-----	
9,250	37,000	.001133	.000033	-----	-----	
9,500	38,000	.001167	.000034	-----	-----	Elastic limit.
9,750	39,000	.001200	.000033	-----	-----	
10,000	40,000	.001233	.000033	0.	-----	
10,250	41,000	.001267	.000034	-----	-----	
10,500	42,000	.012700	.011433	-----	-----	
10,750	43,000	.013167	.000467	-----	-----	
11,000	44,000	.014067	.000900	-----	-----	
11,250	45,000	.014933	.000866	-----	-----	
11,500	46,000	.016100	.001167	-----	-----	
11,750	47,000	.017367	.001267	-----	-----	
12,000	48,000	.019033	.001666	-----	-----	Tensile strength.
12,250	49,000	.020500	.001467	-----	-----	
12,500	50,000	.021800	.001300	-----	-----	
12,750	51,000	.023333	.001533	-----	-----	
13,000	52,000	.025000	.001667	-----	-----	
13,250	53,000	.026500	.001500	-----	-----	
13,500	54,000	.028333	.001833	-----	-----	
13,750	55,000	.029733	.001400	-----	-----	
14,000	56,000	.032000	.002267	-----	-----	
14,250	57,000	.033733	.001733	-----	-----	
14,500	58,000	.036167	.002434	-----	-----	
14,750	59,000	.038333	.002166	-----	-----	
15,000	60,000	.041167	.002834	-----	-----	
15,500	62,000	.047333	.006166	-----	-----	
16,000	64,000	.054000	.006667	-----	-----	
16,500	66,000	.062833	.008833	-----	-----	
17,000	68,000	.0733	.010467	-----	-----	
17,500	70,000	.0900	.0167	-----	-----	
18,000	72,000	.1133	.0233	-----	-----	
18,390	73,560	.1900	.0767	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	73,560
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.2733
Elongation per inch under strain at elastic limit.....	do...	.001267
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....		1".1 from neck
Character of broken surface.....		silky; traces of granulation
Elongation of inch sections.....		".37*, ".26, ".19

No. 2092.

Marks, $\frac{8 T_{38}}{B T_1 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001067	.000134	0.	.....	
10,000	40,000	.001233	.000166	0.	.....	
10,250	41,000	.001233	0.			Elastic limit.
10,500	42,000	.001300	.000067	.....	.....	
10,750	43,000	.001333	.000033	.....	.....	
11,000	44,000	.001400	.000067	.....	.....	
11,250	45,000	.002500	.001100	.....	.....	
11,500	46,000	.005000	.002500	.....	.....	
11,750	47,000	.006667	.001667	.....	.....	
12,000	48,000	.008000	.001333	.....	.....	
12,250	49,000	.009000	.001000	.....	.....	
12,500	50,000	.010267	.001267	.....	.....	
12,750	51,000	.011067	.000800	.....	.....	
13,000	52,000	.012367	.001300	.....	.....	
13,250	53,000	.013333	.000966	.....	.....	
13,500	54,000	.014467	.001134	.....	.....	
13,750	55,000	.015833	.001366	.....	.....	
14,000	56,000	.017267	.001434	.....	.....	
14,250	57,000	.018600	.001333	.....	.....	
14,500	58,000	.020000	.001400	.....	.....	
14,750	59,000	.021333	.001333	.....	.....	
15,000	60,000	.022833	.001500	.....	.....	
15,500	62,000	.026233	.003400	.....	.....	
16,000	64,000	.030000	.003767	.....	.....	
16,500	66,000	.034000	.004000	.....	.....	
17,000	68,000	.038067	.004067	.....	.....	
17,500	70,000	.044000	.005933	.....	.....	
18,000	72,000	.050667	.006667	.....	.....	
18,500	74,000	.060000	.009333	.....	.....	
19,000	76,000	.0633	.0133	.....	.....	
19,500	78,000	.1000	.0267	.....	.....	
19,910	79,640	.1567	.0567			Tensile strength.

General summary.

Specific gravity.....	7.8609
Hardness.....	14.33
Tensile strength per square inch of original section..... pounds..	79,640
Elastic limit per square inch of original section..... do ..	44,000
Elongation per inch after rupture..... inch..	0.2500
Elongation per inch under strain at elastic limit..... do...	.001400
Reduction in diameter at point of rupture..... do...	.184
Reduction in area after rupture, per centum of original section.....	54.6
Position of rupture.....	1".05 from neck
Character of broken surface.....	silky
Elongation of inch sections.....	".42*, ".22, ".11

No. 2093.

Marks, $\frac{8 T_{38}}{B T_2 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000233	.000100	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0	.....	
7,500	30,000	.000900	.000167	0	.....	
8,750	35,000	.001067	.000167	0.	.....	
10,000	40,000	.001233	.000166	0.	.....	
10,250	41,000	.001267	.000034	.....	.....	
10,500	42,000	.001300	.000033	.....	.....	
10,750	43,000	.001333	.000033	.....	.....	
11,000	44,000	.001367	.000034	.....	.....	
11,250	45,000	.001400	.000033	0.	.....	
11,500	46,000	.001467	.000067			Elastic limit.
11,750	47,000	.001567	.000100	.....	.....	
12,000	48,000	.002500	.000933	.....	.....	
12,250	49,000	.004133	.001633	.....	.....	
12,500	50,000	.006000	.001867	.....	.....	
12,750	51,000	.006700	.000700	.....	.....	
13,000	52,000	.007733	.001033	.....	.....	
13,250	53,000	.008733	.001000	.....	.....	
13,500	54,000	.009700	.000967	.....	.....	
13,750	55,000	.010500	.000800	.....	.....	
14,000	56,000	.011500	.001000	.....	.....	
14,250	57,000	.012500	.001000	.....	.....	
14,500	58,000	.013667	.001167	.....	.....	
14,750	59,000	.014667	.001000	.....	.....	
15,000	60,000	.015733	.001067	.....	.....	
15,500	62,000	.018333	.002600	.....	.....	
16,000	64,000	.020433	.002100	.....	.....	
16,500	66,000	.023733	.003300	.....	.....	
17,000	68,000	.026333	.002600	.....	.....	
17,500	70,000	.029667	.003334	.....	.....	
18,000	72,000	.033333	.003666	.....	.....	
18,500	74,000	.037767	.004434	.....	.....	
19,000	76,000	.043333	.005566	.....	.....	
19,500	78,000	.049333	.006000	.....	.....	
20,000	80,000	.056167	.006834	.....	.....	
20,500	82,000	.067000	.010833	.....	.....	
21,000	84,000	.0867	.0197	.....	.....	
21,500	86,000	.1200	.0333	.....	.....	
21,550	86,200	.1500	.0300			Tensile strength.

General summary.

Tensile strength per square inch of original section.....pounds.. 86,200
 Elastic limit per square inch of original section.....do... 46,000
 Elongation per inch after rupture.....inch.. 0.2367
 Elongation per inch under strain at elastic limit.....do... .001467
 Reduction in diameter at point of rupture.....do... .164
 Reduction in area after rupture, per centum of original section..... 49.7
 Position of rupture.....".20 from middle of stem
 Character of broken surface.....silky
 Elongation of inch sections.....".21, ".38*, ".12

H. Ex. 31—50

No. 2094.

Marks, $\frac{8}{B} T_{38}$
Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000467	.000134	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000833	.000200	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
10,000	40,000	.001367	.000200	0.	.....	
10,250	41,000	.001400	.000033			Elastic limit.
10,500	42,000	.001500	.000100	.....	.....	
10,750	43,000	.006000	.004500	.....	.....	
11,000	44,000	.008100	.002100	.....	.....	
11,250	45,000	.009000	.000900	.....	.....	
11,500	46,000	.010000	.001000	.....	.....	
11,750	47,000	.010800	.000800	.....	.....	
12,000	48,000	.011933	.001133	.....	.....	
12,250	49,000	.013000	.001067	.....	.....	
12,500	50,000	.014167	.001167	.....	.....	
12,750	51,000	.015333	.001166	.....	.....	
13,000	52,000	.016667	.001334	.....	.....	
13,250	53,000	.018000	.001333	.....	.....	
13,500	54,000	.019167	.001167	.....	.....	
13,750	55,000	.020667	.001500	.....	.....	
14,000	56,000	.022333	.001666	.....	.....	
14,250	57,000	.023400	.001067	.....	.....	
14,500	58,000	.025167	.001767	.....	.....	
14,750	59,000	.027167	.002000	.....	.....	
15,000	60,000	.029000	.001833			Tensile strength.
15,500	62,000	.032700	.003700	.....	.....	
16,000	64,000	.037067	.004367	.....	.....	
16,500	66,000	.042500	.005433	.....	.....	
17,000	68,000	.048667	.006167	.....	.....	
17,500	70,000	.056333	.007666	.....	.....	
18,000	72,000	.066667	.010334	.....	.....	
18,500	74,000	.0900	.023333			
19,000	76,000	.1233	.0333	.....	.....	
19,140	76,560	.1633	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	76,560
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.2667
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.174
Reduction in area after rupture, per centum of original section.....		52.2
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".18, ".47*, ".15	

No. 2095.

Marks, $\frac{8 T_{38}}{M T_{11}}$ Diameter, $\frac{11}{16}$ inch.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000200	.000100	0.	.....	
3,750	15,000	.000367	.000167	0.	.....	
5,000	20,000	.000533	.000166	0.	.....	
6,250	25,000	.000700	.000167	0.	.....	
7,500	30,000	.000867	.000167	0.	.....	
8,750	35,000	.001033	.000166	0.	.....	
10,000	40,000	.001200	.000167	0.	.....	
10,250	41,000	.001233	.000033			Elastic limit.
10,500	42,000	.001300	.000067	.....	.....	
10,750	43,000	.001433	.000133	.....	.....	
11,000	44,000	.004400	.002967	.....	.....	
11,250	45,000	.006867	.002467	.....	.....	
11,500	46,000	.007400	.000533	.....	.....	
11,750	47,000	.008267	.000867	.....	.....	
12,000	48,000	.009367	.001100	.....	.....	
12,250	49,000	.010233	.000866	.....	.....	
12,500	50,000	.011367	.001134	.....	.....	
12,750	51,000	.012267	.000900	.....	.....	
13,000	52,000	.013167	.000900	.....	.....	
13,250	53,000	.014200	.001033	.....	.....	
13,500	54,000	.015167	.000967	.....	.....	
13,750	55,000	.016233	.001066	.....	.....	
14,000	56,000	.017533	.001300	.....	.....	
14,250	57,000	.018667	.001134	.....	.....	
14,500	58,000	.019933	.001266	.....	.....	
14,750	59,000	.021367	.001434	.....	.....	
15,000	60,000	.022833	.001466	.....	.....	
15,500	62,000	.026000	.003167	.....	.....	
16,000	64,000	.028667	.002667	.....	.....	
16,500	66,000	.032833	.004166	.....	.....	
17,000	68,000	.036667	.003834	.....	.....	
17,500	70,000	.041400	.004733	.....	.....	
18,000	72,000	.046833	.005433	.....	.....	
18,500	74,000	.053000	.006167	.....	.....	
19,000	76,000	.061500	.008500	.....	.....	
19,500	78,000	.072000	.010500	.....	.....	
20,000	80,000	.0933	.0213	.....	.....	
20,500	82,000	.1200	.0267	.....	.....	
20,610	82,440	.1633	.0433			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	82,440
Elastic limit per square inch of original section	do...	42,000
Elongation per inch after rupture	inch..	0.2433
Elongation per inch under strain at elastic limit	do...	.001300
Reduction in diameter at point of rupture	do...	.164
Reduction in area after rupture, per centum of original section		49.7
Position of rupture		".95 from neck
Character of broken surface		silky
Elongation of inch sections		".41*, ".19, ".13

No. 2096.

Marks, $\frac{8}{M} T_{20}$ Diameter, $\frac{11}{16}$.564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	.000033	.000033	
8,750	35,000	.001133	.000133	.000067	.000034	
10,000	40,000	.001333	.000200	.000067	0.	
10,250	41,000	.004000	.002667			Elastic limit.
10,500	42,000	.005367	.001367	.....	.....	
10,750	43,000	.006367	.001000	.....	.....	
11,000	44,000	.007467	.001100	.....	.....	
11,250	45,000	.008533	.001066	.....	.....	
11,500	46,000	.009567	.001034	.....	.....	
11,750	47,000	.010567	.001000	.....	.....	
12,000	48,000	.011500	.000933	.....	.....	
12,250	49,000	.012500	.001000	.....	.....	
12,500	50,000	.013500	.001000	.....	.....	
12,750	51,000	.014467	.000967	.....	.....	
13,000	52,000	.015633	.001166	.....	.....	
13,250	53,000	.016767	.001134	.....	.....	
13,500	54,000	.018100	.001333	.....	.....	
13,750	55,000	.019133	.001033	.....	.....	
14,000	56,000	.020400	.001267	.....	.....	
14,250	57,000	.021433	.001033	.....	.....	
14,500	58,000	.023000	.001567	.....	.....	
14,750	59,000	.024333	.001333	.....	.....	
15,000	60,000	.026167	.001834	.....	.....	
15,500	62,000	.029667	.003500	.....	.....	
16,000	64,000	.033000	.003333	.....	.....	
16,500	66,000	.037167	.004167	.....	.....	
17,000	68,000	.041800	.004633	.....	.....	
17,500	70,000	.047667	.005867	.....	.....	
18,000	72,000	.054167	.006500	.....	.....	
18,500	74,000	.062500	.008333	.....	.....	
19,000	76,000	.074833	.012333	.....	.....	
19,500	78,000	.0967	.021867	.....	.....	
19,960	79,840	.1400	.0433			Tensile strength.

General summary.

Tensile strength per square inch of original sectionpounds.. 79,840
 Elastic limit per square inch of original sectiondo... 40,000
 Elongation per inch after rupture.....inch.. 0.2200
 Elongation per inch under strain at elastic limitdo... .001333
 Reduction in diameter at point of rupture.....do... .164
 Reduction in area after rupture, per centum of original section..... 49.7
 Position of rupture..... $\frac{3}{4}$ inch from neck
 Character of broken surface.....silky
 Elongation of inch sections".43", ".16", ".10

No. 2097.

Marks, $\frac{8 T_{38}}{M T_3 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
10,000	40,000	.001233	.000166	0.	.....	
10,250	41,000	.001267	.000034			Elastic limit.
10,500	42,000	.001333	.000066	.....	.....	
10,750	43,000	.001400	.000067	.....	.....	
11,000	44,000	.001467	.000067	.....	.....	
11,250	45,000	.001700	.000233	.....	.....	
11,500	46,000	.004133	.002433	.....	.....	
11,750	47,000	.005600	.001467	.....	.....	
12,000	48,000	.006533	.000933	.....	.....	
12,250	49,000	.007400	.000867	.....	.....	
12,500	50,000	.008267	.000867			Tensile strength.
12,750	51,000	.009167	.000900	.....	.....	
13,000	52,000	.010333	.001166	.....	.....	
13,250	53,000	.011267	.000934	.....	.....	
13,500	54,000	.012167	.000900	.....	.....	
13,750	55,000	.013000	.000833	.....	.....	
14,000	56,000	.014233	.001233	.....	.....	
14,250	57,000	.015000	.000767	.....	.....	
14,500	58,000	.016200	.001200	.....	.....	
14,750	59,000	.017133	.000933	.....	.....	
15,000	60,000	.018533	.001400	.....	.....	
15,500	62,000	.020767	.002234	.....	.....	
16,000	64,000	.024000	.003233	.....	.....	
16,500	66,000	.026633	.002633	.....	.....	
17,000	68,000	.030000	.003367	.....	.....	
17,500	70,000	.033333	.003333	.....	.....	
18,000	72,000	.037333	.004000	.....	.....	
18,500	74,000	.042333	.005000	.....	.....	
19,000	76,000	.048333	.006000	.....	.....	
19,500	78,000	.055667	.007334	.....	.....	
20,000	80,000	.066667	.011000	.....	.....	
20,500	82,000	.0800	.013333	.....	.....	
21,000	84,000	.1067	.0267	.....	.....	
21,300	85,200	.1667	.0600	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	85,200
Elastic limit per square inch of original section	do..	44,000
Elongation per inch after rupture	inch..	0.2567
Elongation per inch under strain at elastic limit	do..	.001467
Reduction in diameter at point of rupture	do..	.154
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	".2 from middle of stem	
Character of broken surface	silky; traces of granulation	
Elongation of inch sections	".17, ".44*, ".16	

No. 2134.

Marks, ^{8 T₃₉}_{B T₁ I}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001133	0.	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001200	.000033	.....	.....	
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001267	.000034	0.	.....	
10,250	41,000	.001300	.000033	.....	.....	
10,500	42,000	.001367	.000067	.....	.....	
10,750	43,000	.001400	.000033			Elastic limit.
11,000	44,000	.001433	.000033	.....	.....	
11,250	45,000	.001433	0.	0.	.....	
11,500	46,000	.001467	.000034	.....	.....	
11,750	47,000	.005667	.004200	.....	.....	
12,000	48,000	.011600	.005933	.....	.....	
12,250	49,000	.012333	.000733	.....	.....	
12,500	50,000	.013400	.001067	.....	.....	
12,750	51,000	.014533	.001133	.....	.....	
13,000	52,000	.016167	.001634	.....	.....	
13,250	53,000	.017667	.001500	.....	.....	
13,500	54,000	.019033	.001366	.....	.....	
13,750	55,000	.020667	.001634	.....	.....	
14,000	56,000	.022033	.001366	.....	.....	
14,250	57,000	.023733	.001700			Tensile strength.
14,500	58,000	.025500	.001767	.....	.....	
14,750	59,000	.027500	.002000	.....	.....	
15,000	60,000	.029500	.002000	.....	.....	
15,500	62,000	.033733	.004233	.....	.....	
16,000	64,000	.038667	.004934	.....	.....	
16,500	66,000	.044500	.005833	.....	.....	
17,000	68,000	.052333	.007833			
17,500	70,000	.061667	.009334	.....	.....	
18,000	72,000	.075500	.013833	.....	.....	
18,500	74,000	.0967	.0212	.....	.....	
18,870	75,480	.1633	.0666			

General summary.

Specific gravity	7.8597
Hardness.....	12.96
Tensile strength per square inch of original section	pounds.. 75,480
Elastic limit per square inch of original section.....	do... 46,000
Elongation per inch after rupture.....	inch.. 0.2700
Elongation per inch under strain at elastic limit.....	do... .001467
Reduction in diameter at point of rupture.....	do... .194
Reduction in area after rupture, per centum of original section.....	57.0
Position of rupture.....	1".1 from neck
Character of broken surface	silky ; opened cracks in surface of stem
Elongation of inch sections.....	".45*, ".23, ".13

No. 2135.

Marks, $\frac{8}{B} T_{39}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033			Elastic limit.
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001300	.000067	.....	.....	
10,000	40,000	.001367	.000067	.000033	.000033	
10,250	41,000	.001433	.000066	.....	.....	
10,500	42,000	.013833	.012400	.....	.....	
10,750	43,000	.014833	.001000	.....	.....	
11,000	44,000	.016033	.001200	.....	.....	
11,250	45,000	.016900	.000867	.....	.....	
11,500	46,000	.018167	.001267	.....	.....	
11,750	47,000	.019533	.001366	.....	.....	
12,000	48,000	.020900	.001367	.....	.....	
12,250	49,000	.022167	.001267	.....	.....	
12,500	50,000	.024000	.001833	.....	.....	
12,750	51,000	.025100	.001100	.....	.....	
13,000	52,000	.026700	.001600	.....	.....	
13,250	53,000	.028167	.001467	.....	.....	
13,500	54,000	.030233	.002066	.....	.....	
13,750	55,000	.031867	.001634	.....	.....	
14,000	56,000	.034000	.002133	.....	.....	
14,250	57,000	.036000	.002000	.....	.....	
14,500	58,000	.038333	.002333	.....	.....	
14,750	59,000	.040400	.002067	.....	.....	
15,000	60,000	.044500	.004100	.....	.....	
15,500	62,000	.050667	.006167	.....	.....	
16,000	64,000	.056667	.006000	.....	.....	
16,500	66,000	.0667	.010033	.....	.....	
17,000	68,000	.0800	.0133	.....	.....	
17,500	70,000	.1000	.0200	.....	.....	
18,000	72,000	.1200	.0200	.....	.....	
18,350	73,400	.1833	.0633			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	73,400
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.2600
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.124
Reduction in area after rupture, per centum of original section.....		39.2
Position of rupture.....	1" from neck	
Character of broken surface.....	silky; opened cracks in surface of stem	
Elongation of inch sections.....	".37*, ".24, ".17	

No. 2136.

Marks, $\frac{8}{B} T_{39} M$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001300	.000067	.....	.....	
10,000	40,000	.001367	.000067	.000033	.000033	
10,250	41,000	.001400	.000033	.....	.....	Elastic limit.
10,500	42,000	.001423	.000033	.....	.....	
10,750	43,000	.009267	.007834	.....	.....	
11,000	44,000	.009900	.000633	.....	.....	
11,250	45,000	.010800	.000900	.....	.....	
11,500	46,000	.012467	.001667	.....	.....	
11,750	47,000	.013167	.000700	.....	.....	
12,000	48,000	.014567	.001400	.....	.....	
12,250	49,000	.015500	.000933	.....	.....	
12,500	50,000	.016833	.001333	.....	.....	
12,750	51,000	.018333	.001500	.....	.....	
13,000	52,000	.019833	.001500	.....	.....	
13,250	53,000	.021333	.001500	.....	.....	
13,500	54,000	.022833	.001500	.....	.....	
13,750	55,000	.024333	.001500	.....	.....	
14,000	56,000	.026167	.001834	.....	.....	
14,250	57,000	.028167	.002000	.....	.....	
14,500	58,000	.030000	.001833	.....	.....	
14,750	59,000	.032000	.002000	.....	.....	
15,000	60,000	.034000	.002000	.....	.....	
15,500	62,000	.038667	.004667	.....	.....	
16,000	64,000	.044500	.005833	.....	.....	
16,500	66,000	.052167	.007667	.....	.....	
17,000	68,000	.060667	.008500	.....	.....	
17,500	70,000	.0700	.009333	.....	.....	
18,000	72,000	.0900	.0200	.....	.....	
18,500	74,000	.1233	.0333	.....	.....	
18,680	74,720	.1733	.0500	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original sectionpounds.. 74,720
 Elastic limit per square inch of original sectiondo... 42,000
 Elongation per inch after ruptureinch.. 0.2467
 Elongation per inch under strain at elastic limitdo... .001433
 Reduction in diameter at point of rupturedo... .154
 Reduction in area after rupture, per centum of original section 47.2
 Position of rupture $\frac{3}{4}$ inch from neck
 Character of broken surfacesilky; opened cracks in surface of stem
 Elongation of inch sections".41*, ".18, ".15

No. 2137.

Marks, $\frac{8 T_{39}}{M T_1 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	C.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033			Elastic limit.
9,750	39,000	.001267	.000034	.....	.....	
10,000	40,000	.001367	.000100	.000033	.000033	
10,250	41,000	.001400	.000033	.....	.....	
10,500	42,000	.001433	.000033	.....	.....	
10,750	43,000	.001467	.000034	.....	.....	
11,000	44,000	.001467	0.	.....	.....	
11,250	45,000	.001500	.000033	.....	.....	
11,500	46,000	.010433	.008933	.....	.....	
11,750	47,000	.011000	.000567	.....	.....	
12,000	48,000	.012067	.001067			Tensile strength.
12,250	49,000	.012767	.000700	.....	.....	
12,500	50,000	.014133	.001366	.....	.....	
12,750	51,000	.015500	.001367	.....	.....	
13,000	52,000	.017000	.001500	.....	.....	
12,250	53,000	.018333	.001333	.....	.....	
13,500	54,000	.020000	.001667	.....	.....	
13,750	55,000	.021000	.001000	.....	.....	
14,000	56,000	.022333	.001333	.....	.....	
14,250	57,000	.024000	.001667	.....	.....	
14,500	58,000	.025833	.001833			Tensile strength.
14,750	59,000	.027333	.001500	.....	.....	
15,000	60,000	.029500	.002167	.....	.....	
15,500	62,000	.033733	.004233	.....	.....	
16,000	64,000	.038167	.004434	.....	.....	
16,500	66,000	.043567	.005400	.....	.....	
17,000	68,000	.050000	.006433	.....	.....	
17,500	70,000	.059333	.009333	.....	.....	
18,000	72,000	.071667	.012334	.....	.....	
18,500	74,000	.0933	.021633	.....	.....	
19,000	76,000	.1333	.0400			Tensile strength.
19,040	76,160	.1533	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	76,160
Elastic limit per square inch of original section.....	do...	45,000
Elongation per inch after rupture.....	inch..	0.2333
Elongation per inch under strain at elastic limit.....	do...	.001500
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	1".1 from neck	
Character of broken surface.....	silky; opened cracks in surface of stem	
Elongation of inch sections.....	".37*, ".20 ".13	

No. 2138.

Marks, $\frac{8}{M} T_{39}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	.000033	.000033	
2,500	10,000	.000367	.000200	.000033	0.	
3,750	15,000	.000567	.000200	.000033	0.	
5,000	20,000	.000733	.000166	.000033	0.	
6,250	25,000	.000900	.000167	.000067	.000034	
7,500	30,000	.001067	.000167	.000067	0.	
8,750	35,000	.001233	.000166	.000067	0.	
9,000	36,000	.001300	.000067	.....	.....	
9,250	37,000	.001367	.000067	.....	.....	
9,500	38,000	.001400	.000033			Elastic limit.
9,750	39,000	.001433	.000033	.....	.....	
10,000	40,000	.001467	.000034	.000067	0.	
10,250	41,000	.001433	.000034	.....	.....	
10,500	42,000	.005733	.004300	.....	.....	
10,750	43,000	.008500	.002767	.....	.....	
11,000	44,000	.009333	.000833	.....	.....	
11,250	45,000	.010667	.001334	.....	.....	
11,500	46,000	.011700	.001033	.....	.....	
11,750	47,000	.012600	.000900	.....	.....	
12,000	48,000	.014000	.001400			
12,250	49,000	.014967	.000967	.....	.....	
12,500	50,000	.016667	.001700	.....	.....	
12,750	51,000	.017833	.001166	.....	.....	
13,000	52,000	.019333	.001500	.....	.....	
13,250	53,000	.020400	.001067	.....	.....	
13,500	54,000	.022067	.001667	.....	.....	
13,750	55,000	.023500	.001433	.....	.....	
14,000	56,000	.025167	.001667	.....	.....	
14,250	57,000	.026667	.001500	.....	.....	
14,500	58,000	.028733	.002066			Tensile strength.
14,750	59,000	.030400	.001667	.....	.....	
15,000	60,000	.032667	.002267	.....	.....	
15,500	62,000	.037500	.004833	.....	.....	
16,000	64,000	.042333	.004833	.....	.....	
16,500	66,000	.048667	.006334	.....	.....	
17,000	68,000	.056667	.008000	.....	.....	
17,500	70,000	.068333	.011666	.....	.....	
18,000	72,000	.0867	.018367	.....	.....	
18,500	74,000	.1033	.0166	.....	.....	
18,870	75,480	.1467	.0434	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	75,480
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.1667
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.074
Reduction in area after rupture, per centum of original section.....		24.6
Position of rupture.....	$\frac{1}{2}$ inch from neck	
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections.....	".23*, ".15, ".12	

No. 2139.

Marks, $\frac{8 T_{39}}{M T_3 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001133	0.	.....	.....	
9,250	37,000	.001167	.000034			Elastic limit.
9,500	38,000	.001200	.000033	.....	.....	
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001267	.000034	0.	.....	
10,250	41,000	.001367	.000100	.....	.....	
10,500	42,000	.001400	.000033	.....	.....	
10,750	43,000	.004000	.002600	.....	.....	
11,000	44,000	.007667	.003667	.....	.....	
11,250	45,000	.008667	.001000	.....	.....	
11,500	46,000	.009867	.001200	.....	.....	
11,750	47,000	.010700	.000833	.....	.....	
12,000	48,000	.011833	.001133	.....	.....	
12,250	49,000	.013000	.001167	.....	.....	
12,500	50,000	.014133	.001133	.....	.....	
12,750	51,000	.015433	.001300	.....	.....	
13,000	52,000	.016667	.001234	.....	.....	
13,250	53,000	.017833	.001166	.....	.....	
13,500	54,000	.019200	.001367	.....	.....	
13,750	55,000	.020400	.001200	.....	.....	
14,000	56,000	.021933	.001533	.....	.....	
14,250	57,000	.023333	.001400	.....	.....	
14,500	58,000	.025133	.001800	.....	.....	
14,750	59,000	.026667	.001534	.....	.....	
15,000	60,000	.028667	.002000	.....	.....	
15,500	62,000	.032100	.003433	.....	.....	
16,000	64,000	.037000	.004900	.....	.....	
16,500	66,000	.042333	.005333	.....	.....	
17,000	68,000	.048667	.006334	.....	.....	
17,500	70,000	.056667	.008000	.....	.....	
18,000	72,000	.0667	.010033	.....	.....	
18,500	74,000	.0867	.0200	.....	.....	
19,000	76,000	.1100	.0233	.....	.....	
19,220	76,880	.1467	.0367			Tensile strength.

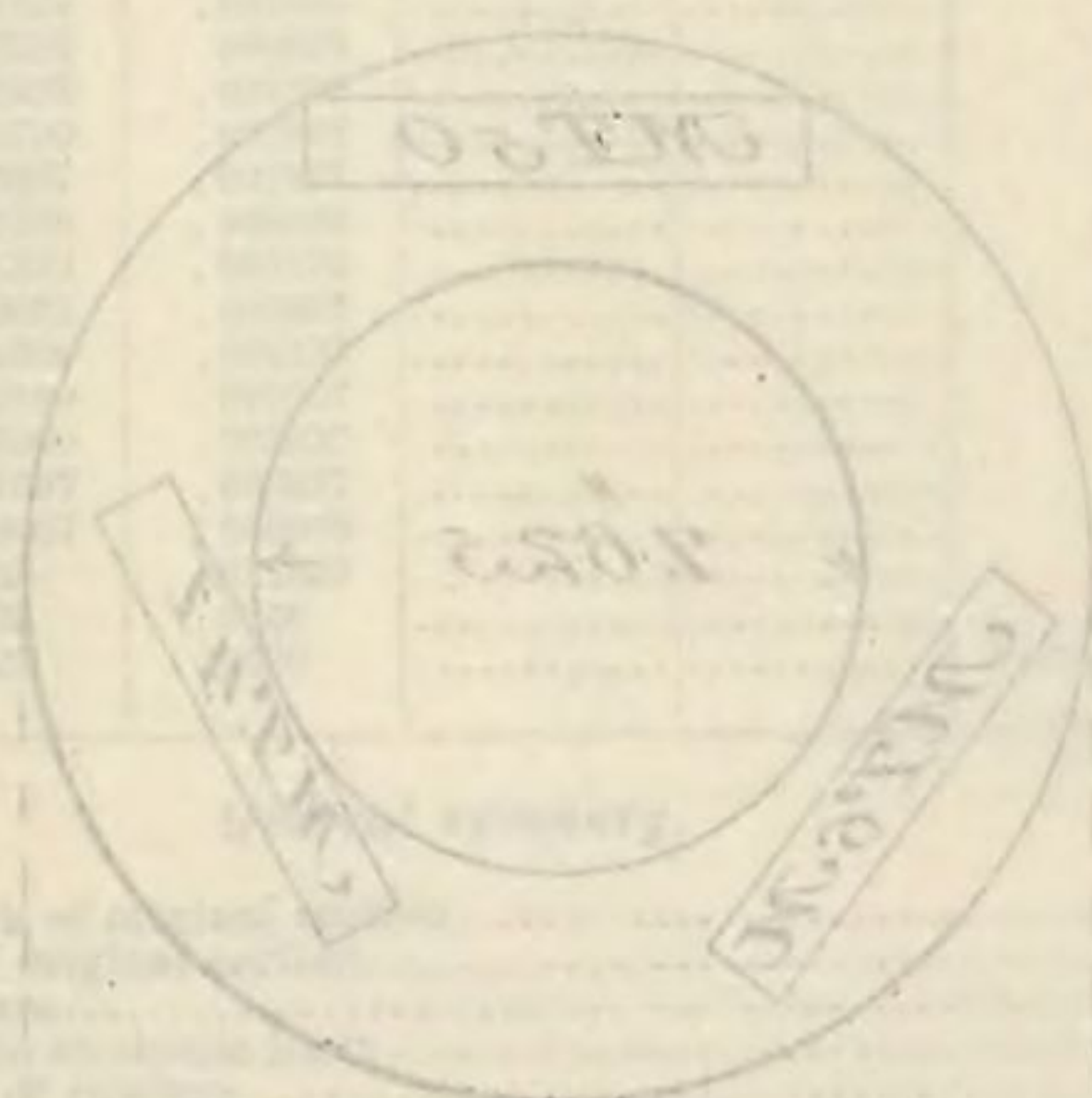
General summary.

Tensile strength per square inch of original section.....	pounds..	76,880
Elastic limit per square inch of original section.....	do...	42,000
Elongation per inch after rupture.....	inch..	0.1933
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.074
Reduction in area after rupture, per centum of original section.....		24.6
Position of rupture.....	".22 from neck	
Character of broken surface.....	granular; dull spot at circumference	
Fractured.....	$\frac{1}{4}$ inch from minimum diameter	
Elongation of inch sections.....	".31*, ".14, ".13	

No. 3451

Machine, 17 1/2
Diameter, 17.5
Sectional area, 25 square inch.

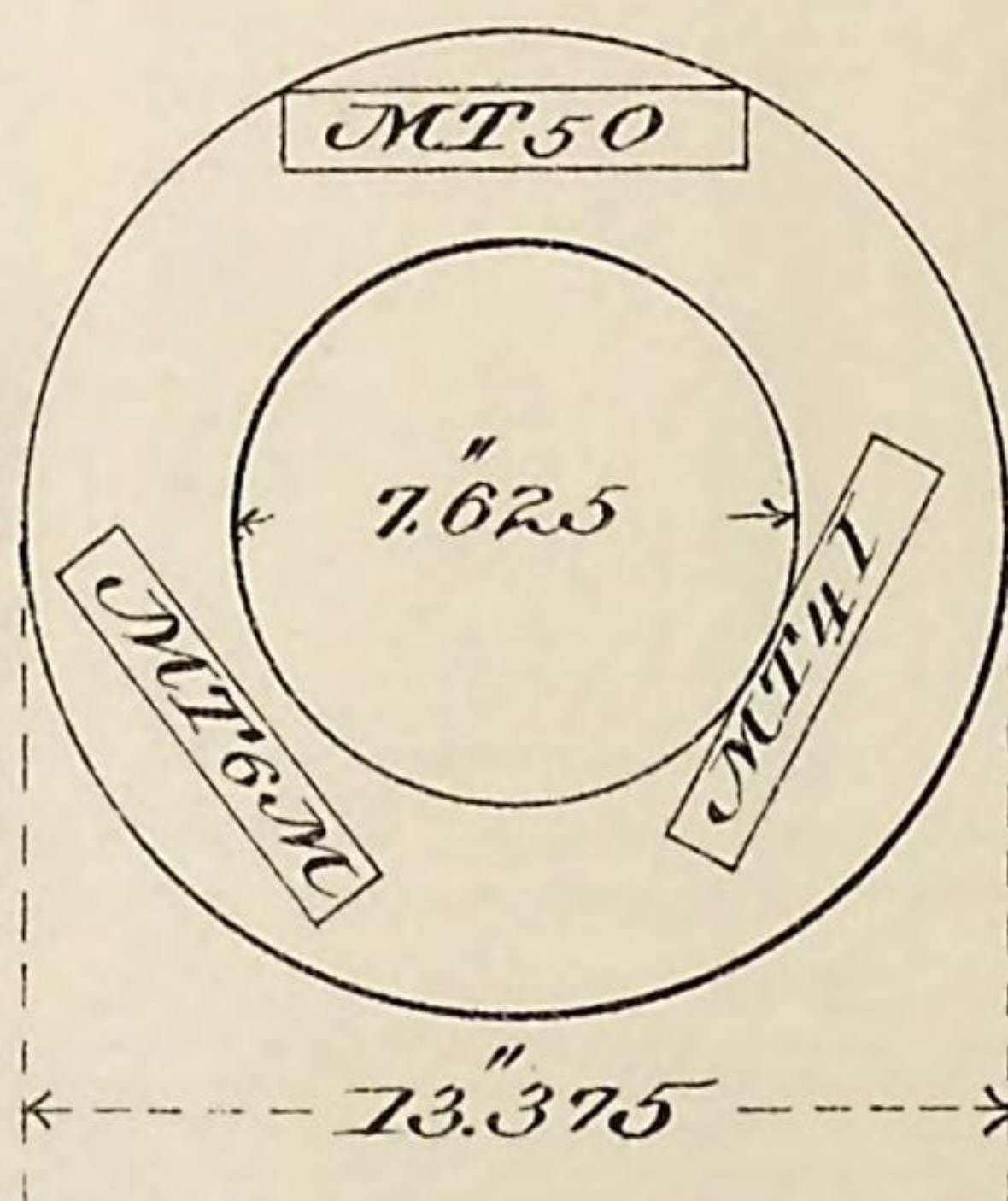
Table No. 33		8' converted Rifle	
Weight	Length	Weight	Length
100	100	100	100
101	101	101	101
102	102	102	102
103	103	103	103
104	104	104	104
105	105	105	105
106	106	106	106
107	107	107	107
108	108	108	108
109	109	109	109
110	110	110	110
111	111	111	111
112	112	112	112
113	113	113	113
114	114	114	114
115	115	115	115
116	116	116	116
117	117	117	117
118	118	118	118
119	119	119	119
120	120	120	120
121	121	121	121
122	122	122	122
123	123	123	123
124	124	124	124
125	125	125	125
126	126	126	126
127	127	127	127
128	128	128	128
129	129	129	129
130	130	130	130
131	131	131	131
132	132	132	132
133	133	133	133
134	134	134	134
135	135	135	135
136	136	136	136
137	137	137	137
138	138	138	138
139	139	139	139
140	140	140	140
141	141	141	141
142	142	142	142
143	143	143	143
144	144	144	144
145	145	145	145
146	146	146	146
147	147	147	147
148	148	148	148
149	149	149	149
150	150	150	150



H Ex 31 49 5

Tube No. 39 8" converted Rifle

Additional specimens



H Ex 3 / 49 2

No. 2484.

Marks, $\frac{8 T_{39}}{M T_{41}}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	.....	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001200	.000033			Elastic limit.
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001300	.000067	.....	.....	
10,250	41,000	.001367	.000067	.....	.....	
10,500	42,000	.001400	.000033	.....	.....	
10,750	43,000	.001433	.000033	.....	.....	
11,000	44,000	.001600	.000167	.....	.....	
11,250	45,000	.004733	.003133	.....	.....	
11,500	46,000	.009533	.004800	.....	.....	
11,750	47,000	.010233	.000700	.....	.....	
12,000	48,000	.011533	.001300			Tensile strength.
12,250	49,000	.012333	.000800	.....	.....	
12,500	50,000	.013823	.001500	.....	.....	
13,000	52,000	.016700	.002867	.....	.....	
13,500	54,000	.019667	.002967	.....	.....	
14,000	56,000	.022700	.003033	.....	.....	
14,500	58,000	.025833	.003133	.....	.....	
15,000	60,000	.029667	.003834	.....	.....	
15,500	62,000	.033900	.004233	.....	.....	
16,000	64,000	.039167	.005267	.....	.....	
16,500	66,000	.045000	.005833	.....	.....	
17,000	68,000	.051667	.006667	.....	.....	
17,500	70,000	.060667	.009000	.....	.....	
18,000	72,000	.0733	.012633	.....	.....	
18,500	74,000	.0933	.0200	.....	.....	
19,000	76,000	.1433	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	76.000
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	0.2433
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.184
Reduction in area after rupture, per centum of original section.....		54.6
Position of rupture.....	1".15 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".36*, ".24 ".13	

No. 2485.

Marks, $\frac{8 T_{39}}{M T_5 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000733	.000133	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001033	.000133	.....	.....	
9,000	36,000	.001067	.000034	.....	.....	
9,250	37,000	.001100	.000033	.....	.....	
9,500	38,000	.001133	.000033	.....	.....	
9,750	39,000	.001133	0.	.....	.....	
10,000	40,000	.001167	.000034	.....	.....	
10,250	41,000	.001200	.000033	.....	.....	
10,500	42,000	.001233	.000033			Elastic limit.
10,750	43,000	.001300	.000067	.....	.....	
11,000	44,000	.001400	.000100	.....	.....	
11,250	45,000	.009367	.007967	.....	.....	
11,500	46,000	.010000	.000633	.....	.....	
11,750	47,000	.010733	.000733	.....	.....	
12,000	48,000	.011900	.001167	.....	.....	
12,250	49,000	.012833	.000933	.....	.....	
12,500	50,000	.014500	.001667	.....	.....	
13,000	52,000	.017000	.002500	.....	.....	
13,500	54,000	.019667	.002667	.....	.....	
14,000	56,000	.022667	.003000	.....	.....	
14,500	58,000	.025333	.002666	.....	.....	
15,000	60,000	.028833	.003500	.....	.....	
15,500	62,000	.032333	.003500			Tensile strength.
16,000	64,000	.037167	.004834	.....	.....	
16,500	66,000	.042000	.004833	.....	.....	
17,000	68,000	.047833	.005833	.....	.....	
17,500	70,000	.055000	.007167	.....	.....	
18,000	72,000	.0667	.0117	.....	.....	
18,500	74,000	.0767	.0100	.....	.....	
19,000	76,000	.1033	.0266	.....	.....	
19,350	77,400	.1433	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	77,400
Elastic limit, per square inch of original section	do...	44,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.134
Reduction in area after rupture, per centum of original section		41.9
Position of rupture		".75 from neck
Character of broken surface		silky, with slight granulation
Elongation of inch sections		".33*, ".15, ".12

No. 2486.

Marks, $\frac{8 T_{39}}{M T_6 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001100	.000100	.....	.....	
9,000	36,000	.001167	.000067	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033			Elastic limit.
9,750	39,000	.001267	.000034	.....	.....	
10,000	40,000	.001333	.000066	.....	.....	
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.001433	.000066	.....	.....	
10,750	43,000	.009500	.008067	.....	.....	
11,000	44,000	.010500	.001000	.....	.....	
11,250	45,000	.011333	.000833	.....	.....	
11,500	46,000	.012500	.001167	.....	.....	
11,750	47,000	.013467	.000967	.....	.....	
12,000	48,000	.014833	.001366			Tensile strength.
12,250	49,000	.015800	.000967	.....	.....	
12,500	50,000	.017167	.001367	.....	.....	
13,000	52,000	.020167	.003000	.....	.....	
13,500	54,000	.023167	.003000	.....	.....	
14,000	56,000	.026333	.003166	.....	.....	
14,500	58,000	.029667	.003334	.....	.....	
15,000	60,000	.033833	.004166	.....	.....	
15,500	62,000	.038500	.004667	.....	.....	
16,000	64,000	.043833	.005333	.....	.....	
16,500	66,000	.050000	.006167	.....	.....	
17,000	68,000	.057667	.007667	.....	.....	
17,500	70,000	.0700	.012333	.....	.....	
18,000	72,000	.0833	.0133	.....	.....	
18,500	74,000	.1033	.0200	.....	.....	
18,940	75,760	.1700	.0667	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	75,760
Elastic limit per square inch of original section	do...	42,000
Elongation per inch after rupture	inch..	0.2233
Elongation per inch under strain at elastic limit	do...	.001433
Reduction in diameter at point of rupture	do...	.094
Reduction in area after rupture, per centum of original section		30.6
Position of rupture	1".60 from neck	
Character of broken surface granular; dull spot at circumference; opened cracks in surface of stem		
Elongation of inch sections	".16", .32", .19	

No. 1129.

Marks, $\frac{8}{B} \frac{T_{40}}{T_1 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000300	.000133	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	.000033	.000033	
6,250	25,000	.000800	.000167	.000033	0.	
7,500	30,000	.000967	.000167	.000057	.000034	
8,750	35,000	.001133	.000166	.000100	.000033	
10,000	40,000	.001367	.000234	.000100	0.	
10,250	41,000	.002333	.000966			Elastic limit.
10,500	42,000	.007167	.004834	.....	.....	
10,750	43,000	.008000	.000833	.....	.....	
11,000	44,000	.009200	.001200	.....	.....	
11,250	45,000	.010233	.001033	.008467	.008367	
11,500	46,000	.011600	.001367	.....	.....	
11,750	47,000	.012733	.001133	.....	.....	
12,000	48,000	.013733	.001000	.....	.....	
12,250	49,000	.014933	.001200	.....	.....	
12,500	50,000	.016467	.001534	.014567	.006100	
12,750	51,000	.017067	.000600	.....	.....	
13,000	52,000	.018767	.001700	.....	.....	
13,250	53,000	.020400	.001633	.....	.....	
13,500	54,000	.022067	.001667	.....	.....	
13,750	55,000	.023833	.001766	.....	.....	
14,000	56,000	.026000	.002167	.....	.....	
14,250	57,000	.028000	.002000	.....	.....	
14,500	58,000	.030500	.002500	.....	.....	
14,750	59,000	.032167	.001667	.....	.....	
15,000	60,000	.034600	.002433	.....	.....	
15,500	62,000	.040000	.005400	.....	.....	
16,000	64,000	.045667	.005667	.....	.....	
16,500	66,000	.053333	.007666	.....	.....	
17,000	68,000	.063333	.010000	.....	.....	
17,500	70,000	.079333	.016000	.....	.....	
18,000	72,000	.1233	.043967	.....	.....	
18,180	72,720	{ .1533 .1967 }	{ .0300 .0434 }			Tensile strength.

General summary.

Specific gravity.....	7.8556
Hardness.....	11.92
Tensile strength per square inch of original section.....pounds..	72,720
Elastic limit per square inch of original section.....do...	40,000
Elongation per inch after rupture.....inch..	0.2667
Elongation per inch under strain at elastic limit.....do...	.001367
Reduction in diameter at point of rupture.....do...	.154
Reduction in area after rupture, per centum of original section.....	47.2
Position of rupture.....	$\frac{7}{8}$ inch from neck
Character of broken surface.....	silky
Elongation of inch sections.....	".44", ".20", ".16

No. 1130.

Marks, $\frac{8}{B} T_{40}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000533	.000200	0.	.....	
5,000	20,000	.000700	.000167	.000033	.000033	
6,250	25,000	.000867	.000167	.000033	0.	
7,500	30,000	.001033	.000166	.000067	.000034	
8,750	35,000	.001167	.000134	.000067	0.	
9,500	38,000	.001300	.000133	.....	.....	
9,750	39,000	.001367	.000067	.....	.....	
10,000	40,000	.001433	.000066	.000167	.000100	Elastic limit.
10,250	41,000	.005767	.004334	.....	.....	
10,500	42,000	.008033	.002266	.....	.....	
10,750	43,000	.008500	.000467	.....	.....	
11,000	44,000	.009433	.000933	.....	.....	
11,250	45,000	.010700	.001267	.009033	.008866	
11,500	46,000	.012033	.001333	.....	.....	
11,750	47,000	.012533	.000500	.....	.....	
12,000	48,000	.014667	.002134	.....	.....	
12,250	49,000	.015600	.000933	.....	.....	
12,500	50,000	.017400	.001800	.015333	.006300	
12,750	51,000	.017700	.000300	.....	.....	
13,000	52,000	.018400	.000700	.....	.....	
13,250	53,000	.020167	.001767	.....	.....	
13,500	54,000	.022167	.002000	.....	.....	
13,750	55,000	.023600	.001433	.....	.....	
14,000	56,000	.025500	.001900	.....	.....	
14,250	57,000	.027167	.001667	.....	.....	
14,500	58,000	.029167	.002000	.....	.....	
14,750	59,000	.031100	.001933	.....	.....	
15,000	60,000	.033433	.002333	.....	.....	
15,500	62,000	.037667	.004234	.....	.....	
16,000	64,000	.043333	.005666	.....	.....	
16,500	66,000	.050000	.006667	.....	.....	
17,000	68,000	.058500	.008500	.....	.....	
17,500	70,000	.068933	.010433	.....	.....	
18,000	72,000	.084000	.015067	.....	.....	
18,500	74,000	.1133	.0293	.....	.....	
18,740	74,960	.1667	.0534			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	74,960
Elastic limit per square inch of original section.....	do...	40,000
Elongation per inch after rupture.....	inch..	0.2533
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....	".1 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".21, ".40*, ".15	

H. Ex. 31—51

No. 1131.

Marks, $\frac{8 T_{40}}{B T_3 M}$
 Diameter, ".564.
 Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000200	.000200	.000033	.000033	
2,500	10,000	.000433	.000233	.000033	0.	
3,750	15,000	.000600	.000167	.000067	.000034	
5,000	20,000	.000733	.000133	.000067	0.	
6,250	25,000	.000900	.000167	.000067	0.	
7,500	30,000	.001067	.000167	.000100	.000033	
8,750	35,000	.001233	.000166	.000133	.000033	
9,000	36,000	.001367	.000134	.....	.....	
9,250	37,000	.001933	.000566			Elastic limit.
9,500	38,000	.008267	.006334	.....	.....	
9,750	39,000	.009433	.001166	.....	.....	
10,000	40,000	.010400	.000967	.008900	.008767	
10,250	41,000	.011267	.000867	.....	.....	
10,500	42,000	.012267	.001000	.....	.....	
10,750	43,000	.013400	.001233	.....	.....	
11,000	44,000	.015133	.001733	.....	.....	
11,250	45,000	.016500	.001367	.....	.....	
11,500	46,000	.017333	.000833			Tensile strength.
11,750	47,000	.018967	.001634	.....	.....	
12,000	48,000	.020000	.001033	.....	.....	
12,250	49,000	.021667	.001667	.....	.....	
12,500	50,000	.023400	.001733	.....	.....	
12,750	51,000	.025333	.001933	.....	.....	
13,000	52,000	.027000	.001667	.....	.....	
13,250	53,000	.028667	.001667	.....	.....	
13,500	54,000	.030667	.002000	.....	.....	
13,750	55,000	.032500	.001833	.....	.....	
14,000	56,000	.035067	.002567			Tensile strength.
14,250	57,000	.037067	.002000	.....	.....	
14,500	58,000	.039433	.002366	.....	.....	
14,750	59,000	.042167	.002734	.....	.....	
15,000	60,000	.045833	.003666	.....	.....	
15,500	62,000	.052333	.006500	.....	.....	
16,000	64,000	.060667	.008334	.....	.....	
16,500	66,000	.071333	.010666	.....	.....	
17,000	68,000	.0933	.021967	.....	.....	
17,500	70,000	.1133	.0200	.....	.....	
17,920	71,680	.1900	.0767	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	71,680
Elastic limit per square inch of original section.....	do...	35,000
Elongation per inch after rupture.....	inch..	0.2333
Elongation per inch under strain at elastic limit.....	do ..	.001233
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section		49.7
Position of rupture	at middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections	".20, ".34*, ".16	

No. 1132.

Marks, $\frac{8 T_{40}}{M T_1 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	.....	.....	
2,500	10,000	.000367	.000200	.....	.....	
3,750	15,000	.000533	.000166	.....	.....	
5,000	20,000	.000700	.000167	.....	.....	
6,250	25,000	.000867	.000167	.....	.....	
7,500	30,000	.001033	.000166	.....	.....	
8,500	34,000	.001067	.000034	.....	.....	Elastic limit.
8,750	35,000	.001300	.000233	.000200	.000200	
9,000	36,000	.002900	.001600	.....	.....	
9,250	37,000	.005333	.002433	.....	.....	
9,500	38,000	.007667	.002334	.....	.....	
9,750	39,000	.008667	.001000	.....	.....	
10,000	40,000	.010067	.001400	.008500	.008300	
10,250	41,000	.010400	.000333	.....	.....	
10,500	42,000	.011600	.001200	.....	.....	
10,750	43,000	.012733	.001133	.....	.....	
11,000	44,000	.013933	.001200	.....	.....	
11,250	45,000	.015267	.001334	.....	.....	
11,500	46,000	.016733	.001466	.....	.....	
11,750	47,000	.018033	.001300	.....	.....	
12,000	48,000	.019333	.001300	.....	.....	
12,250	49,000	.020400	.001067	.....	.....	
12,500	50,000	.022067	.001667	.....	.....	
12,750	51,000	.023733	.001666	.....	.....	
13,000	52,000	.025333	.001600	.....	.....	
13,250	53,000	.027400	.002067	.....	.....	
13,500	54,000	.029000	.001600	.....	.....	
13,750	55,000	.031067	.002067	.....	.....	
14,000	56,000	.033333	.002266	.....	.....	
14,250	57,000	.035933	.002600	.....	.....	
14,500	58,000	.037833	.001900	.....	.....	
14,750	59,000	.040500	.002667	.....	.....	
15,000	60,000	.043333	.002833	.....	.....	
15,500	62,000	.049167	.005834	.....	.....	
16,000	64,000	.056333	.007166	.....	.....	
16,500	66,000	.066000	.009667	.....	.....	
17,000	68,000	.080000	.014000	.....	.....	
17,500	70,000	.1000	.0200	.....	.....	
18,000	72,000	.1333	.0333	.....	.....	
18,200	72,800	.1933	.0600	.....	.....	Tensile strength.

General summary.

Specific gravity	7.8528
Hardness	11.59
Tensile strength per square inch of original section..... pounds..	72,800
Elastic limit per square inch of original section..... do...	34,000
Elongation per inch after rupture..... inch..	0.2400
Elongation per inch under strain at elastic limit..... do...	.001067
Reduction in diameter at point of rupture..... do...	.134
Reduction in area after rupture, per centum of original section.....	41.9
Position of rupture.....	$\frac{1}{8}$ inch from neck
Character of broken surface.....	silky
Elongation of inch sections	".35", ".20", ".17

No. 1133.

Marks, $\frac{8}{M} \frac{T_{40}}{T_2 O}$ Diameter, $\frac{1}{2}$ ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000200	.000200	.000033	.000033	
2,500	10,000	.000367	.000167	.000033	0.	
3,750	15,000	.000533	.000166	.000067	.000034	
5,000	20,000	.000700	.000167	.000067	0.	
6,250	25,000	.000867	.000167	.000067	0.	
7,500	30,000	.001033	.000166	.000100	.000033	
8,750	35,000	.001200	.000167	.000100	0.	
9,000	36,000	.001233	.000033			Elastic limit.
9,250	37,000	.001400	.000167	.....	.....	
9,500	38,000	.007067	.005667	.....	.....	
9,750	39,000	.009333	.002266	.....	.....	
10,000	40,000	.010400	.001067	.008900	.008800	
10,250	41,000	.010900	.000500	.....	.....	
10,500	42,000	.011500	.000600	.....	.....	
10,750	43,000	.012367	.000867	.....	.....	
11,000	44,000	.013567	.001200	.....	.....	
11,250	45,000	.014833	.001266	.....	.....	
11,500	46,000	.016333	.001500			
11,750	47,000	.017333	.001000	.....	.....	
12,000	48,000	.018333	.001000	.....	.....	
12,250	49,000	.019867	.001534	.....	.....	
12,500	50,000	.021167	.001300	.....	.....	
12,750	51,000	.022000	.000833	.....	.....	
13,000	52,000	.023267	.001267	.....	.....	
13,250	53,000	.024667	.001400	.....	.....	
13,500	54,000	.026467	.001800	.....	.....	
13,750	55,000	.028133	.001666	.....	.....	
14,000	56,000	.030100	.001967			
14,250	57,000	.031700	.001600	.....	.....	
14,500	58,000	.033333	.001633	.....	.....	
14,750	59,000	.035100	.001767	.....	.....	
15,000	60,000	.037400	.002300	.....	.....	
15,500	62,000	.042400	.005000	.....	.....	
16,000	64,000	.047333	.004933	.....	.....	
16,500	66,000	.053400	.006067	.....	.....	
17,000	68,000	.060167	.006767	.....	.....	
17,500	70,000	.071333	.011166	.....	.....	
18,000	72,000	.0867	.015367			Tensile strength.
18,500	74,000	.1033	.0166	.....	.....	
19,000	76,000	.1333	.0300	.....	.....	
19,280	77,120	.1967	.0634	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	77,123
Elastic limit per square inch of original section	do...	36,000
Elongation per inch after rupture	inch..	0.2360
Elongation per inch under strain at elastic limit	do...	.001237
Reduction in diameter at point of rupture	do...	.074
Reduction in area after rupture, per centum of original section		24.6
Position of rupture	".40 from middle of stem	
Character of broken surface, granular; flaky spot at circumference; cracks developed along surface of stem.		
Elongation of inch sections	".21, ".31*, ".19	

No. 1134.

Marks, $\frac{8}{M} T_{40}$ Diameter, $\frac{11}{32}$.564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	.000033	.000033	
8,750	35,000	.001133	.000166	.000033	0.	Elastic limit.
9,000	36,000	.002733	.001600	.....	.....	
9,250	37,000	.005833	.003100	.....	.....	
9,500	38,000	.008400	.002567	.....	.....	
9,750	39,000	.009567	.001167	.....	.....	
10,000	40,000	.010667	.001100	.009233	.009200	
10,250	41,000	.011000	.000333	.....	.....	
10,500	42,000	.011600	.000600	.....	.....	
10,750	43,000	.012467	.000867	.....	.....	
11,000	44,000	.013767	.001300	.....	.....	
11,250	45,000	.015167	.001400			
11,500	46,000	.016567	.001400	.....	.....	
11,750	47,000	.017367	.000800	.....	.....	
12,000	48,000	.018700	.001333	.....	.....	
12,250	49,000	.019800	.001100	.....	.....	
12,500	50,000	.021400	.001600	.....	.....	
12,750	51,000	.022667	.001267	.....	.....	
13,000	52,000	.024100	.001433	.....	.....	
13,250	53,000	.025433	.001333	.....	.....	
13,500	54,000	.027167	.001734	.....	.....	
13,750	55,000	.028833	.001666			
14,000	56,000	.030800	.001967	.....	.....	
14,250	57,000	.032467	.001667	.....	.....	
14,500	58,000	.034533	.002066	.....	.....	
14,750	59,000	.036167	.001634	.....	.....	
15,000	60,000	.038167	.002000	.....	.....	
15,500	62,000	.042667	.004500	.....	.....	
16,000	64,000	.045000	.002333	.....	.....	
16,500	66,000	.054833	.009833	.....	.....	
17,000	68,000	.062333	.007500			Tensile strength.
17,500	70,000	.072667	.010334	.....	.....	
18,000	72,000	.085667	.013000	.....	.....	
18,500	74,000	.1167	.031033	.....	.....	
19,000	76,000	.1633	.0466			

General summary.

Tensile strength per square inch of original section.....	pounds..	76,000
Elastic limit per square inch of original section.....	do...	35,000
Elongation per inch after rupture.....	inch..	0.2367
Elongation per inch under strain at elastic limit.....	do...	.001133
Reduction in diameter at point of rupture.....	do...	.114
Reduction in area after rupture, per centum of original section.....		36.4
Position of rupture.....	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	.38*, .21, .12	

No. 2098.

Marks, $\frac{8 T_{41}}{B T_1 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000333	.000200	0.	-----	
3,750	15,000	.000467	.000134	0.	-----	
5,000	20,000	.000633	.000166	0.	-----	
6,250	25,000	.000800	.000167	0.	-----	
7,500	30,000	.000967	.000167	0.	-----	
8,750	35,000	.001133	.000166	0.	-----	
10,000	40,000	.001367	.000234	.000033	.000033	Elastic limit.
10,250	41,000	.001567	.000200	-----	-----	
10,500	42,000	.002500	.000933	-----	-----	
10,750	43,000	.005167	.002667	-----	-----	
11,000	44,000	.006167	.001000	-----	-----	
11,250	45,000	.007500	.001333	-----	-----	
11,500	46,000	.008667	.001167	-----	-----	
11,750	47,000	.010233	.001556	-----	-----	
12,000	48,000	.011500	.001267	-----	-----	
12,250	49,000	.012667	.001167	-----	-----	
12,500	50,000	.013733	.001066	-----	-----	
12,750	51,000	.014667	.000934	-----	-----	
13,000	52,000	.015767	.001100	-----	-----	
13,250	53,000	.017167	.001400	-----	-----	
13,500	54,000	.018567	.001400	-----	-----	
13,750	55,000	.019867	.001300	-----	-----	
14,000	56,000	.021667	.001800	-----	-----	
14,250	57,000	.023333	.001666	-----	-----	
14,500	58,000	.024967	.001634	-----	-----	
14,750	59,000	.026667	.001700	-----	-----	
15,000	60,000	.028667	.002000	-----	-----	
15,500	62,000	.033167	.004500	-----	-----	
16,000	64,000	.036900	.003733	-----	-----	
16,500	66,000	.042000	.005100	-----	-----	
17,000	68,000	.048667	.006667	-----	-----	
17,500	70,000	.056167	.007500	-----	-----	
18,000	72,000	.068333	.012166	-----	-----	
18,500	74,000	.0900	.021667	-----	-----	
19,000	76,000	.1300	.0400	-----	-----	
19,190	76,760	.1800	.0500	-----	-----	Tensile strength.

General summary.

Specific gravity.....	7.8576
Hardness.....	13.46
Tensile strength per square inch of original section.....pounds..	76,760
Elastic limit per square inch of original section.....do....	40,000
Elongation per inch after rupture.....inch.....	0.2967
Elongation per inch under strain at elastic limit.....do....	.001367
Reduction in diameter at point of rupture.....do....	.204
Reduction in area after rupture, per centum of original section.....	59.3
Position of rupture.....	".60 from middle of stem
Character of broken surface.....	silky
Elongation of inch sections.....	".35*, ".37*, ".17

No. 2099.

Marks, $\frac{8}{B} T_{41}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000600	.000200	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000900	.000133	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
10,000	40,000	.001233	.000166	0.	.....	
10,250	41,000	.001267	.000034			Elastic limit.
10,500	42,000	.001300	.000033	.....	.....	
10,750	43,000	.001367	.000067	.....	.....	
11,000	44,000	.001433	.000066	.....	.....	
11,250	45,000	.001600	.000167	.....	.....	
11,500	46,000	.003567	.001967	.....	.....	
11,750	47,000	.004133	.000566	.....	.....	
12,000	48,000	.005300	.001167	.....	.....	
12,250	49,000	.006333	.001033	.....	.....	
12,500	50,000	.007700	.001367	.....	.....	
12,750	51,000	.008667	.000967	.....	.....	
13,000	52,000	.009767	.001100	.....	.....	
13,250	53,000	.010633	.000866	.....	.....	
13,500	54,000	.011767	.001134	.....	.....	
13,750	55,000	.013033	.001266	.....	.....	
14,000	56,000	.014200	.001167	.....	.....	
14,250	57,000	.015100	.000900	.....	.....	
14,500	58,000	.017000	.001900	.....	.....	
14,750	59,000	.018333	.001333	.....	.....	
15,000	60,000	.019667	.001334	.....	.....	
15,500	62,000	.022333	.002666			Tensile strength.
16,000	64,000	.025133	.002800	.....	.....	
16,500	66,000	.029000	.003867	.....	.....	
17,000	68,000	.033000	.004000	.....	.....	
17,500	70,000	.037067	.004067	.....	.....	
18,000	72,000	.041500	.004433	.....	.....	
18,500	74,000	.047333	.005833			
19,000	76,000	.055167	.007834			
19,500	78,000	.064000	.008833			
20,000	80,000	.079000	.015000			
20,500	82,000	.1067	.0277			
20,600	82,400	.1500	.0433			

General summary.

Tensile strength per square inch of original section	pounds..	82,400
Elastic limit per square inch of original section	do...	44,000
Elongation per inch after rupture	inch..	0.1667
Elongation per inch under strain at elastic limit	do...	.001433
Reduction in diameter at point of rupture	do...	.074
Reduction in area after rupture, per centum of original section		24.6
Position of rupture		$\frac{3}{4}$ inch from neck
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections		".22*, ".16, ".12

No. 2100.

Marks, $\begin{smallmatrix} 8 T_{41} \\ B T_3 M \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000200	.000100	0.	.....	
3,750	15,000	.000367	.000167	0.	.....	
5,000	20,000	.000500	.000133	0.	.....	
6,250	25,000	.000667	.000167	0.	.....	
7,500	30,000	.000833	.000166	0.	.....	
8,750	35,000	.001033	.000200	0.	.....	
10,000	40,000	.001300	.000267	.000100	.000100	
10,250	41,000	.001367	.000067			Elastic limit.
10,500	42,000	.002167	.000800	.....	.....	
10,750	43,000	.003267	.001100	.....	.....	
11,000	44,000	.004767	.001500	.....	.....	
11,250	45,000	.006000	.001233	.....	.....	
11,500	46,000	.007333	.001333	.....	.....	
11,750	47,000	.008367	.001034	.....	.....	
12,000	48,000	.009533	.001166	.....	.....	
12,250	49,000	.010400	.000867	.....	.....	
12,500	50,000	.011433	.001033	.....	.....	
12,750	51,000	.012500	.001067	.....	.....	
13,000	52,000	.013567	.001067	.....	.....	
13,250	53,000	.014700	.001133	.....	.....	
13,500	54,000	.015933	.001233	.....	.....	
13,750	55,000	.017267	.001334	.....	.....	
14,000	56,000	.018467	.001200	.....	.....	
14,250	57,000	.019500	.001033	.....	.....	
14,500	58,000	.021167	.001667	.....	.....	
14,750	59,000	.022333	.001166	.....	.....	
15,000	60,000	.024267	.001934	.....	.....	
15,500	62,000	.027833	.003566	.....	.....	
16,000	64,000	.031667	.003834	.....	.....	
16,500	66,000	.036667	.005000	.....	.....	
17,000	68,000	.041167	.004500	.....	.....	
17,500	70,000	.046833	.005666	.....	.....	
18,000	72,000	.054000	.007167	.....	.....	
18,500	74,000	.063000	.009000	.....	.....	
19,000	76,000	.0767	.0147	.....	.....	
19,500	78,000	.1000	.0233	.....	.....	
19,910	79,640	.1633	.0633			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	79,640
Elastic limit per square inch of original section.....	do....	41,000
Elongation per inch after rupture.....	inch..	0.2433
Elongation per inch under strain at elastic limit.....	do....	.001367
Reduction in diameter at point of rupture.....	do....	.154
Reduction in area after rupture, per centum of original section.....		47.2
Position of rupture.....	$\frac{1}{2}$ inch from middle of stem	
Character of broken surface.....	silky, with traces of granulation	
Elongation of inch sections.....	".24, ".36*, ".13	

No. 2101.

Marks, $\frac{8}{M} \frac{T_{41}}{T_{11}}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000500	.000200	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000800	.000133	0.	.....	
7,500	30,000	.000967	.000157	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
10,000	40,000	.001300	.000167	0.	.....	
10,250	41,000	.001367	.000067	.....	.....	
10,500	42,000	.001400	.000033	.....	.....	
10,750	43,000	.001433	.000033	.....	.....	
11,000	44,000	.001467	.000034			Elastic limit.
11,250	45,000	.001500	.000033	.....	.....	
11,500	46,000	.001600	.000100	.....	.....	
11,750	47,000	.001633	.000033	.....	.....	
12,000	48,000	.001700	.000067	.....	.....	
12,250	49,000	.001800	.000100	.....	.....	
12,500	50,000	.001967	.000167	.....	.....	
12,750	51,000	.002733	.000766	.....	.....	
13,000	52,000	.004833	.002100	.....	.....	
13,250	53,000	.006100	.001267	.....	.....	
13,500	54,000	.007133	.001033	.....	.....	
13,750	55,000	.008033	.000900	.....	.....	
14,000	56,000	.009333	.001300	.....	.....	
14,250	57,000	.010400	.001067	.....	.....	
14,500	58,000	.011500	.001100	.....	.....	
14,750	59,000	.012500	.001000	.....	.....	
15,000	60,000	.013667	.001167	.....	.....	
15,500	62,000	.015833	.002166	.....	.....	
16,000	64,000	.018267	.002434	.....	.....	
16,500	66,000	.020833	.002566	.....	.....	
17,000	68,000	.023500	.002667	.....	.....	
17,500	70,000	.026667	.003167	.....	.....	
18,000	72,000	.029867	.003200	.....	.....	
18,500	74,000	.033333	.003466	.....	.....	
19,000	76,000	.037500	.004167	.....	.....	
19,500	78,000	.042667	.005167	.....	.....	
20,000	80,000	.048000	.005333	.....	.....	
20,500	82,000	.057067	.009067	.....	.....	
21,000	84,000	.065667	.008600	.....	.....	
21,500	86,000	.0867	.021033	.....	.....	
21,910	87,640	.1267	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	87,640
Elastic limit per square inch of original section	do...	48,000
Elongation per inch after rupture	inch..	0.1333
Elongation per inch under strain at elastic limit	do...	.001700
Reduction in diameter at point of rupture	do...	.144
Reduction in area after rupture, per centum of original section		44.6
Position of rupture	".55 from neck	
Character of broken surface	granular small dull spot at circumference	
Elongation of inch sections	".12, ".16*, ".12	

No. 2102.

Marks, $\frac{8}{M} T_{41}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000467	.000134	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
10,000	40,000	.001300	.000167	0.	.....	
10,250	41,000	.001367	.000067	.....	.....	
10,500	42,000	.001433	.000066	.....	.....	
10,750	43,000	.001467	.000034	.....	.....	
11,000	44,000	.001500	.000033	.....	.....	
11,250	45,000	.001533	.000033	.....	.....	
11,500	46,000	.001567	.000034	.....	.....	
11,750	47,000	.001600	.000033	.....	.....	
12,000	48,000	.001633	.000033	.....	.....	
12,250	49,000	.001700	.000067	.....	.....	
12,500	50,000	.001733	.000033			Elastic limit.
12,750	51,000	.001933	.000200	.....	.....	
13,000	52,000	.002167	.000234	.....	.....	
13,250	53,000	.003367	.001200	.....	.....	
13,500	54,000	.005000	.001633	.....	.....	
13,750	55,000	.006367	.001367	.....	.....	
14,000	56,000	.007833	.001466	.....	.....	
14,250	57,000	.009167	.001334	.....	.....	
14,500	58,000	.010000	.000833	.....	.....	
14,750	59,000	.010833	.000833	.....	.....	
15,000	60,000	.011833	.001000	.....	.....	
15,500	62,000	.013833	.002000	.....	.....	
16,000	64,000	.016667	.002834	.....	.....	
16,500	66,000	.019333	.002666	.....	.....	
17,000	68,000	.021833	.002500	.....	.....	
17,500	70,000	.024833	.003000	.....	.....	
18,000	72,000	.027867	.003034	.....	.....	
18,500	74,000	.031333	.003466	.....	.....	
19,000	76,000	.035200	.003867	.....	.....	
19,500	78,000	.039500	.004300	.....	.....	
20,000	80,000	.044833	.005333	.....	.....	
20,500	82,000	.052500	.007667	.....	.....	
21,000	84,000	.061000	.0085	.....	.....	
21,500	86,000	.0733	.0123	.....	.....	
21,990	87,960	.1267	.0534			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	87,960
Elastic limit per square inch of original section	do...	50,000
Elongation per inch after rupture	inch..	0.1933
Elongation per inch under strain at elastic limit	do...	.001733
Reduction in diameter at point of rupture	do...	.124
Reduction in area after rupture, per centum of original section		39.2
Position of rupture	".30 from middle	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	".17, ".31*, ".10	

No. 2103.

Marks, $\frac{8 T_{41}}{M T_3 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.001033	.000233	.000033	.000033	
8,750	35,000	.001233	.000200	.000067	.000034	
10,000	40,000	.001367	.000134	.000067	0.	
10,250	41,000	.001433	.000066			Elastic limit.
10,500	42,000	.001467	.000034	.....	.....	
10,750	43,000	.001500	.000033	.....	.....	
11,000	44,000	.001500	0.	.....	.....	
11,250	45,000	.001533	.000033	.....	.....	
11,500	46,000	.001567	.000034	.....	.....	
11,750	47,000	.001600	.000033	.....	.....	
12,000	48,000	.001700	.000100	.....	.....	
12,250	49,000	.001967	.000267	.....	.....	
12,500	50,000	.002700	.000733	.....	.....	
12,750	51,000	.003733	.001033	.....	.....	
13,000	52,000	.004833	.001100	.....	.....	
13,250	53,000	.006033	.001200	.....	.....	
13,500	54,000	.007067	.001034	.....	.....	
13,750	55,000	.008300	.001233	.....	.....	
14,000	56,000	.009367	.001067	.....	.....	
14,250	57,000	.010167	.000800	.....	.....	
14,500	58,000	.011500	.001333	.....	.....	
14,750	59,000	.012133	.000631	.....	.....	
15,000	60,000	.013167	.001024			Tensile strength.
15,500	62,000	.015067	.001900	.....	.....	
16,000	64,000	.017500	.001433	.....	.....	
16,500	66,000	.019833	.002333	.....	.....	
17,000	68,000	.023000	.003167	.....	.....	
17,500	70,000	.026167	.003167	.....	.....	
18,000	72,000	.029000	.002833	.....	.....	
18,500	74,000	.032333	.003333	.....	.....	
19,000	76,000	.035667	.003334	.....	.....	
19,500	78,000	.040333	.004666	.....	.....	
20,000	80,000	.045000	.004667	.....	.....	
20,500	82,000	.052000	.007000	.....	.....	
21,000	84,000	.060000	.008000	.....	.....	
21,500	86,000	.071667	.011667	.....	.....	
22,000	88,000	.0967	.025033	.....	.....	
22,080	88,320	.1167	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	88,320
Elastic limit per square inch of original section	do...	47,000
Elongation per inch after rupture	inch..	0.1733
Elongation per inch under strain at elastic limit	do...	.001600
Reduction in diameter at point of rupture	do...	.124
Reduction in area after rupture, per centum of original section		39.2
Position of rupture	".60 from neck	
Character of broken surface	granular at circumference; dull center	
Elongation of inch sections	".33*, ".10, ".09	

[Additional specimens.]

No. 2478.

Marks, $\frac{8}{B} \frac{T_{41}}{T_{41} I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000200	.000200	0.	.....	
2,500	10,000	.000400	.000200	0.	.....	
3,750	15,000	.000600	.000200	0.	.....	
5,000	20,000	.000833	.000233	0.	.....	
6,250	25,000	.000967	.000134	0.	.....	
7,500	30,000	.001100	.000133	0.	.....	
8,750	35,000	.001233	.000133	.....	.....	
9,000	36,000	.001300	.000067	.....	.....	
9,250	37,000	.001333	.000033	.....	.....	
9,500	38,000	.001367	.000034			Elastic limit.
9,750	39,000	.001400	.000033	.....	.....	
10,000	40,000	.001500	.000100	.....	.....	
10,250	41,000	.001800	.000300	.....	.....	
10,500	42,000	.005733	.003933	.....	.....	
10,750	43,000	.007667	.001934	.....	.....	
11,000	44,000	.008667	.001000	.....	.....	
11,250	45,000	.009767	.001100	.....	.....	
11,500	46,000	.011067	.001300	.....	.....	
11,750	47,000	.012033	.000966	.....	.....	
12,000	48,000	.013500	.001467			Tensile strength.
12,250	49,000	.014733	.001233	.....	.....	
12,500	50,000	.016167	.001434	.....	.....	
13,000	52,000	.019667	.003500	.....	.....	
13,500	54,000	.022667	.003000	.....	.....	
14,000	56,000	.026033	.003366	.....	.....	
14,500	58,000	.029700	.003667	.....	.....	
15,000	60,000	.034000	.004300	.....	.....	
15,500	62,000	.038500	.004500	.....	.....	
16,000	64,000	.043733	.005233	.....	.....	
16,500	66,000	.050667	.006934	.....	.....	
17,000	68,000	.059000	.008333	.....	.....	
17,500	70,000	.0700	.0110	.....	.....	
18,000	72,000	.0867	.0167	.....	.....	
18,500	74,000	.1267	.0400	.....	.....	
18,650	74,600	.1667	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	74,600
Elastic limit per square inch of original section.....	do...	39,000
Elongation per inch after rupture.....	inch..	0.2700
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.191
Reduction in area after rupture, per centum of original section.....		57.0
Position of rupture.....	1".28 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".14, ".27, ".40*	

No. 2479.

Marks, $\frac{8}{B} \frac{T_{41}}{T_{50}}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000567	.000134	0.	.....	
6,250	25,000	.000700	.000133	0.	.....	
7,500	30,000	.000833	.000133	0.	.....	
7,750	31,000	.000867	.000014	.....	.....	
8,000	32,000	.000900	.000033	.....	.....	
8,250	33,000	.000967	.000067	.....	.....	
8,500	34,000	.001000	.000033	.....	.....	
8,750	35,000	.001033	.000033	.....	.....	
9,000	36,000	.001067	.000034	.....	.....	
9,250	37,000	.001067	0.	.....	.....	
9,500	38,000	.001100	.000033	.....	.....	
9,750	39,000	.001133	.000033	.....	.....	
10,000	40,000	.001200	.000067	.....	.....	
10,250	41,000	.001233	.000033	.....	.....	
10,500	42,000	.001300	.000067	.....	.....	
10,750	43,000	.001400	.000100	.....	.....	Elastic limit.
11,000	44,000	.003333	.001933	.....	.....	
11,250	45,000	.005000	.001667	.....	.....	
11,500	46,000	.006333	.001333	.....	.....	
11,750	47,000	.007133	.000800	.....	.....	
12,000	48,000	.008167	.001034	.....	.....	
12,250	49,000	.009000	.000833	.....	.....	
12,500	50,000	.010333	.001333	.....	.....	
13,000	52,000	.013233	.002900	.....	.....	
13,500	54,000	.016000	.002767	.....	.....	
14,000	56,000	.018567	.002567	.....	.....	
14,500	58,000	.021367	.002800	.....	.....	
15,000	60,000	.024667	.003300	.....	.....	
15,500	62,000	.028333	.003666	.....	.....	
16,000	64,000	.032000	.003667	.....	.....	
16,500	66,000	.036667	.004667	.....	.....	
17,000	68,000	.041367	.004700	.....	.....	
17,500	70,000	.048500	.007133	.....	.....	
18,000	72,000	.055667	.007167	.....	.....	
18,500	74,000	.0667	.011033	.....	.....	
19,000	76,000	.0767	.0100	.....	.....	
19,500	78,000	.1200	.0433	.....	.....	
19,560	78,240	.1400	.0200	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	78,240
Elastic limit per square inch of original section.....	do....	43,000
Elongation per inch after rupture.....	inch..	0.2433
Elongation per inch under strain at elastic limit.....	do....	.001400
Reduction in diameter at point of rupture.....	do....	.185
Reduction in area after rupture, per centum of original section		54.6
Position of rupture.....	1".4 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".13, ".37*, ".23	

No. 2480.

Marks, $\frac{8 T_{41}}{B T_6 M}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000667	.000200	0.	.....	
6,250	25,000	.000800	.000133	0.	.....	
7,500	30,000	.000933	.000133	0.	.....	
7,750	31,000	.000967	.000034	.....	.....	
8,000	32,000	.001000	.000033	.....	.....	
8,250	33,000	.001067	.000067	.....	.....	
8,500	34,000	.001100	.000033	.....	.....	
8,750	35,000	.001133	.000033	.....	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001267	.000034	.....	.....	
10,000	40,000	.001333	.000066			Elastic limit.
10,250	41,000	.001633	.000300	.....	.....	
10,500	42,000	.004967	.003334	.....	.....	
10,750	43,000	.006667	.001700	.....	.....	
11,000	44,000	.007833	.001166	.....	.....	
11,250	45,000	.009033	.001200	.....	.....	
11,500	46,000	.010167	.001134	.....	.....	
11,750	47,000	.011433	.001266	.....	.....	
12,000	48,000	.012500	.001067	.....	.....	
12,250	49,000	.013333	.000833	.....	.....	
12,500	50,000	.015100	.001767	.....	.....	
13,000	52,000	.018333	.003433	.....	.....	
13,500	54,000	.021233	.002700	.....	.....	
14,000	56,000	.024333	.003100	.....	.....	
14,500	58,000	.028333	.004000	.....	.....	
15,000	60,000	.031833	.003500	.....	.....	
15,500	62,000	.036667	.004834	.....	.....	
16,000	64,000	.041333	.004666	.....	.....	
16,500	66,000	.048167	.006834	.....	.....	
17,000	68,000	.0567	.008533	.....	.....	
17,500	70,000	.0667	.0100			Tensile strength.
18,000	72,000	.0767	.0100	.....	.....	
18,500	74,000	.0967	.0200	.....	.....	
18,850	75,400	.1567	.0600	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	75,400
Elastic limit per square inch of original section	do...	40,000
Elongation per inch after rupture	inch..	0.2600
Elongation per inch under strain at elastic limit	do...	.001333
Reduction in diameter at point of rupture	do...	.195
Reduction in area after rupture, per centum of original section		57.0
Position of rupture	1".10 from neck	
Character of broken surface	silky	
Elongation of inch sections	".40*, ".24, ".14	

No. 2481.

Marks, $\frac{8}{M} T_{41}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000300	.000133	0.	.....	
3,750	15,000	.000500	.000200	0.	.....	
5,000	20,000	.000633	.000133	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001100	.000133	.....	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001233	.000066			Elastic limit.
9,750	39,000	.001267	.000034	.....	.....	
10,000	40,000	.001333	.000066	.....	.....	
10,250	41,000	.001400	.000067	.....	.....	
10,500	42,000	.001400	0.	.....	.....	
10,750	43,000	.001433	.000033	.....	.....	
11,000	44,000	.001500	.000067	.....	.....	
11,250	45,000	.014000	.012500	.....	.....	
11,500	46,000	.014933	.000933	.....	.....	
11,750	47,000	.015367	.000434	.....	.....	
12,000	48,000	.016667	.001300			Tensile strength.
12,250	49,000	.017667	.001000	.....	.....	
12,500	50,000	.019033	.001366	.....	.....	
13,000	52,000	.021600	.002567	.....	.....	
13,500	54,000	.024667	.003067	.....	.....	
14,000	56,000	.027833	.003166	.....	.....	
14,500	58,000	.031333	.003500	.....	.....	
15,000	60,000	.035000	.003667	.....	.....	
15,500	62,000	.039333	.004333	.....	.....	
16,000	64,000	.044667	.005334	.....	.....	
16,500	66,000	.050667	.006000	.....	.....	
17,000	68,000	.056333	.005666	.....	.....	
17,500	70,000	.0633	.006967	.....	.....	
18,000	72,000	.0733	.0100	.....	.....	
18,500	74,000	.0900	.0167	.....	.....	
19,000	76,000	.1167	.0267	.....	.....	
19,280	77,120	.1600	.0433	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	77,120
Elastic limit per square inch of original section.....	do ..	44,000
Elongation per inch after rupture.....	inch..	0.1667
Elongation per inch under strain at elastic limit.....	do...	.001500
Reduction in diameter at point of rupture.....	do...	.064
Reduction in area after rupture, per centum of original section.....		21.4
Position of rupture.....	1".4 from neck	
Character of broken surface, granular, radiating from a flaky spot at circumference; opened small cracks in surface of stem.		
Elongation of inch sections.....	".16, ".20*, ".14	

No. 2482.

Marks, $\frac{8 T_{41}}{M T_5 O}$
Diameter, ".564.
Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001100	.000133	.....	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001200	.000033	.....	.....	
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001333	.000100	.....	.....	
10,250	41,000	.001400	.000067	.....	.....	
10,500	42,000	.001433	.000033	.....	.....	
10,750	43,000	.001433	0.	.....	.....	
11,000	44,000	.001500	.000067			Elastic limit.
11,250	45,000	.014500	.013000	.....	.....	
11,500	46,000	.015667	.001167	.....	.....	
11,750	47,000	.016400	.000733	.....	.....	
12,000	48,000	.018000	.001600	.....	.....	
12,250	49,000	.018833	.000833	.....	.....	
12,500	50,000	.020333	.001500	.....	.....	
13,000	52,000	.023333	.003000	.....	.....	
13,500	54,000	.026000	.002667	.....	.....	
14,000	56,000	.029333	.003333	.....	.....	
14,500	58,000	.032900	.003567	.....	.....	
15,000	60,000	.037233	.004333	.....	.....	
15,500	62,000	.041700	.004467	.....	.....	
16,000	64,000	.047667	.005967	.....	.....	
16,500	66,000	.055667	.008000	.....	.....	
17,000	68,000	.061033	.005366	.....	.....	
17,500	70,000	.0667	.005667	.....	.....	
18,000	72,000	.0833	.0166			Tensile strength.
18,500	74,000	.1033	.0200	.....	.....	
19,000	76,000	.1433	.0400	.....	.....	
19,060	76,240	.1667	.0234	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	76,240
Elastic limit per square inch of original section	do...	44,000
Elongation per inch after rupture	inch..	0.2433
Elongation per inch under strain at elastic limit	do...	.001500
Reduction in diameter at point of rupture	do...	.154
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	1 inch from neck	
Character of broken surface	silky	
Elongation of inch sections	".40", ".20", ".13	

No. 2483.

Marks, $\frac{8}{M} T_{41}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	— .000033	— .000033	Initial load.
1,250	5,000	.000100	.000100	— .000033	0.	
2,500	10,000	.000233	.000133	— .000033	0.	
3,750	15,000	.000400	.000167	— .000033	0.	
5,000	20,000	.000567	.000167	— .000033	0.	
6,250	25,000	.000767	.000200	— .000033	0.	
7,500	30,000	.000933	.000166	.....	.....	
8,750	35,000	.001067	.000134	.....	.....	
9,000	36,000	.001100	.000033	.....	.....	
9,250	37,000	.001133	.000033	.....	.....	
9,500	38,000	.001200	.000067	.....	.....	
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001267	.000034	.....	.....	
10,250	41,000	.001300	.000033	.....	.....	
10,500	42,000	.001333	.000033	.....	.....	
10,750	43,000	.001367	.000034	.....	.....	Elastic limit.
11,000	44,000	.013333	.011966	.....	.....	
11,250	45,000	.013733	.000400	.....	.....	
11,500	46,000	.014667	.000934	.....	.....	
11,750	47,000	.015667	.001000	.....	.....	
12,000	48,000	.017067	.001400	.....	.....	
12,250	49,000	.018167	.001100	.....	.....	
12,500	50,000	.019500	.001333	.....	.....	
13,000	52,000	.022367	.002867	.....	.....	
13,500	54,000	.025500	.003133	.....	.....	
14,000	56,000	.028367	.002867	.....	.....	
14,500	58,000	.031733	.003366	.....	.....	
15,000	60,000	.035500	.003767	.....	.....	
15,500	62,000	.040000	.004500	.....	.....	
16,000	64,000	.044667	.004667	.....	.....	
16,500	66,000	.050333	.005666	.....	.....	
17,000	68,000	.058667	.008334	.....	.....	
17,500	70,000	.0667	.008033	.....	.....	
18,000	72,000	.0733	.0066	.....	.....	
18,500	74,000	.0900	.0167	.....	.....	
19,000	76,000	.1100	.0200	.....	.....	
19,350	77,400	.1567	.0467	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	77,400
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	0.2333
Elongation per inch under strain at elastic limit.....	do...	.001367
Reduction in diameter at point of rupture.....	do...	.165
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	".80 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".42*, ".16, ".12	

H. Ex. 31—52

No. 2523

Machine, 3 3/4
Diameter, 1.561.
Sectional area, .25 square inch.

Applied Load	Extension per inch	Per cent elongation	Per cent reduction of area	Remarks
100	0.001	0.001	0.001	
200	0.002	0.002	0.002	
300	0.003	0.003	0.003	
400	0.004	0.004	0.004	
500	0.005	0.005	0.005	
600	0.006	0.006	0.006	
700	0.007	0.007	0.007	
800	0.008	0.008	0.008	
900	0.009	0.009	0.009	
1000	0.010	0.010	0.010	
1100	0.011	0.011	0.011	
1200	0.012	0.012	0.012	
1300	0.013	0.013	0.013	
1400	0.014	0.014	0.014	
1500	0.015	0.015	0.015	
1600	0.016	0.016	0.016	
1700	0.017	0.017	0.017	
1800	0.018	0.018	0.018	
1900	0.019	0.019	0.019	
2000	0.020	0.020	0.020	
2100	0.021	0.021	0.021	
2200	0.022	0.022	0.022	
2300	0.023	0.023	0.023	
2400	0.024	0.024	0.024	
2500	0.025	0.025	0.025	
2600	0.026	0.026	0.026	
2700	0.027	0.027	0.027	
2800	0.028	0.028	0.028	
2900	0.029	0.029	0.029	
3000	0.030	0.030	0.030	
3100	0.031	0.031	0.031	
3200	0.032	0.032	0.032	
3300	0.033	0.033	0.033	
3400	0.034	0.034	0.034	
3500	0.035	0.035	0.035	
3600	0.036	0.036	0.036	
3700	0.037	0.037	0.037	
3800	0.038	0.038	0.038	
3900	0.039	0.039	0.039	
4000	0.040	0.040	0.040	
4100	0.041	0.041	0.041	
4200	0.042	0.042	0.042	
4300	0.043	0.043	0.043	
4400	0.044	0.044	0.044	
4500	0.045	0.045	0.045	
4600	0.046	0.046	0.046	
4700	0.047	0.047	0.047	
4800	0.048	0.048	0.048	
4900	0.049	0.049	0.049	
5000	0.050	0.050	0.050	

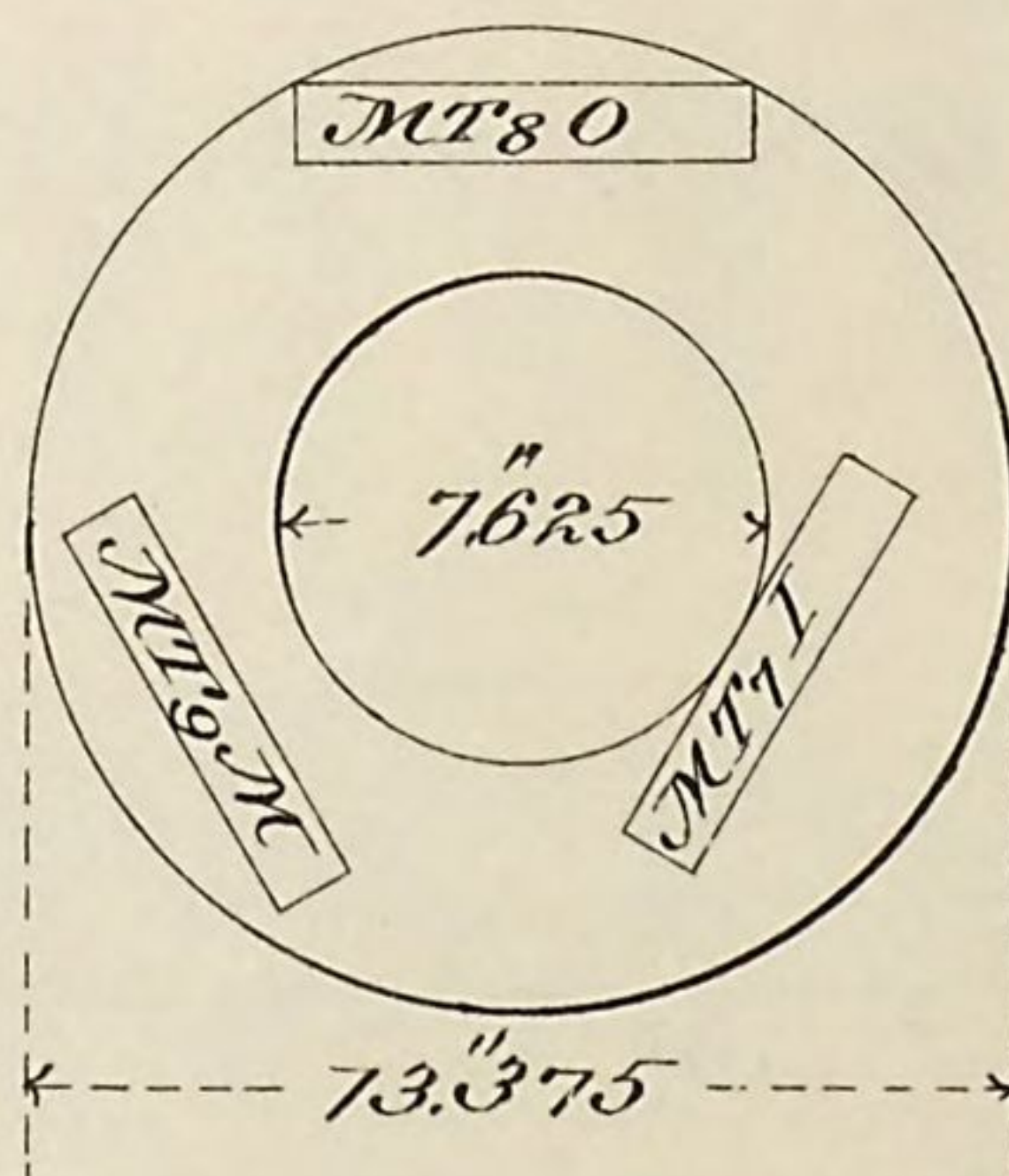


H E 31 49 2

H E 31 49 2

Tube No. 41 8" converted Rifle

Additional specimens



H Ex 3 / 49 2

No. 2558.

Marks, $\frac{8}{T_{41}}$ MT₇ I

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	-----	
2,500	10,000	.000233	.000133	0.	-----	
3,750	15,000	.000400	.000167	0.	-----	
5,000	20,000	.000600	.000200	0.	-----	
6,250	25,000	.000767	.000167	0.	-----	
7,500	30,000	.000933	.000166	0.	-----	
8,750	35,000	.001067	.000134	0.	-----	
9,000	36,000	.001100	.000033	-----	-----	
9,250	37,000	.001167	.000067	-----	-----	
9,500	38,000	.001200	.000033	-----	-----	Elastic limit.
9,750	39,000	.001233	.000033	-----	-----	
10,000	40,000	.001267	.000034	-----	-----	
10,250	41,000	.001300	.000033	-----	-----	
10,500	42,000	.001367	.000067	-----	-----	
10,750	43,000	.001400	.000033	-----	-----	
11,000	44,000	.011000	.009600	-----	-----	
11,250	45,000	.011667	.000667	-----	-----	
11,500	46,000	.012867	.001200	-----	-----	
11,750	47,000	.013733	.000866	-----	-----	
12,000	48,000	.015567	.001834	-----	-----	Tensile strength.
12,250	49,000	.016167	.000600	-----	-----	
12,500	50,000	.017500	.001333	-----	-----	
13,000	52,000	.020333	.002833	-----	-----	
13,500	54,000	.023000	.002667	-----	-----	
14,000	56,000	.026100	.003100	-----	-----	
14,500	58,000	.029600	.003500	-----	-----	
15,000	60,000	.033000	.003400	-----	-----	
15,500	62,000	.038167	.005167	-----	-----	
16,000	64,000	.0433	.005133	-----	-----	
16,500	66,000	.0533	.0100	-----	-----	
17,000	68,000	.0600	.0067	-----	-----	
17,500	70,000	.0700	.0100	-----	-----	
18,000	72,000	.0767	.0067	-----	-----	
18,500	74,000	.0967	.0200	-----	-----	
19,000	76,000	{ .1400 .1633 }	{ .0433 .0233 }	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	76,000
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.134
Reduction in area after rupture, per centum of original section.....		41.9
Position of rupture.....	1".65 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".13, ".34*, ".13	

No. 2559.

Marks, ⁸T₄₁
M T₈₀
Diameter, ".564.
Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000800	.000200	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001067	.000100	.....	.....	
9,000	36,000	.001133	.000066	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001200	.000033			Elastic limit.
9,750	39,000	.001267	.000067	.....	.....	
10,000	40,000	.001367	.000100	.....	.....	
10,250	41,000	.001833	.000466	.....	.....	
10,500	42,000	.012000	.010167	.....	.....	
10,750	43,000	.013000	.001000	.....	.....	
11,000	44,000	.013700	.000700	.....	.....	
11,250	45,000	.014367	.000667	.....	.....	
11,500	46,000	.015667	.001300	.....	.....	
11,750	47,000	.016667	.001000	.....	.....	
12,000	48,000	.018033	.001366	.....	.....	
12,250	49,000	.019167	.001134	.....	.....	
12,500	50,000	.020700	.001533	.....	.....	
13,000	52,000	.023500	.002800	.....	.....	
13,500	54,000	.026667	.003167	.....	.....	
14,000	56,000	.030000	.003333			Tensile strength.
14,500	58,000	.034000	.004000	.....	.....	
15,000	60,000	.037833	.003833	.....	.....	
15,500	62,000	.0433	.005467	.....	.....	
16,000	64,000	.0500	.0067	.....	.....	
16,500	66,000	.0600	.0100	.....	.....	
17,000	68,000	.0700	.0100	.....	.....	
17,500	70,000	.0800	.0100	.....	.....	
18,000	72,000	.0933	.0133	.....	.....	
18,500	74,000	.1100	.0167	.....	.....	
18,910	75,640	.1833	.0733	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	75,640
Elastic limit per square inch of original section.....	do...	39,000
Elongation per inch after rupture.....	inch..	0.2733
Elongation per inch under strain at elastic limit.....	do...	.001267
Reduction in diameter at point of rupture.....	do...	.174
Reduction in area after rupture, per centum of original section.....		52.2
Position of rupture.....	1".25 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".17, ".31, ".34*	

No. 2560.

Marks, $\overset{8}{M} \overset{T_1}{T_2} \overset{M}{M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	.....	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034			Elastic limit.
9,500	38,000	.001233	.000066	.....	.....	
9,750	39,000	.001367	.000034	.....	.....	
10,000	40,000	.001467	.000100	.....	.....	
10,250	41,000	.010267	.008800	.....	.....	
10,500	42,000	.011000	.000733	.....	.....	
10,750	43,000	.011733	.000733	.....	.....	
11,000	44,000	.013000	.001267	.....	.....	
11,250	45,000	.013733	.000733	.....	.....	
11,500	46,000	.014867	.001134			Tensile strength.
11,750	47,000	.015833	.000966	.....	.....	
12,000	48,000	.017367	.001534	.....	.....	
12,250	49,000	.018300	.000933	.....	.....	
12,500	50,000	.019667	.001367	.....	.....	
13,000	52,000	.022333	.002666	.....	.....	
13,500	54,000	.025500	.003167	.....	.....	
14,000	56,000	.029000	.003500	.....	.....	
14,500	58,000	.032167	.003167	.....	.....	
15,000	60,000	.035667	.003500	.....	.....	
15,500	62,000	.040833	.005166			Tensile strength.
16,000	64,000	.0467	.005867	.....	.....	
16,500	66,000	.0567	.0100	.....	.....	
17,000	68,000	.0667	.0100	.....	.....	
17,500	70,000	.0733	.0066	.....	.....	
18,000	72,000	.0833	.0100	.....	.....	
18,500	74,000	.1000	.0167	.....	.....	
19,000	76,000	.1300	.0300	.....	.....	
19,140	76,560	.1700	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section.....pounds.. 76,560
 Elastic limit per square inch of original section.....do... 38,000
 Elongation per inch after rupture.....inch.. 0.1767
 Elongation per inch under strain at elastic limit.....do... .001233
 Reduction in diameter at point of rupture.....do... .074
 Reduction in area after rupture, per centum of original section..... 24.6
 Position of rupture.....".90 from neck
 Character of broken surface, granular; flaky spot near the circumference; opened cracks in surface of stem.
 Elongation of inch sections.....".23*, ".17, ".13

No. 1135.

Marks, $\frac{8 T_{42}}{B T_1 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000300	.000200	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000733	.000133	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001100	.000200	.....	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034			Elastic limit.
9,500	38,000	.001233	.000066	.....	.....	
*9,750	39,000	.001367	.000134	.....	.....	
10,000	40,000	.002500	.001133	.....	.....	
10,250	41,000	.004167	.001667	.....	.....	
10,500	42,000	.006167	.002000	.....	.....	
10,750	43,000	.007500	.001333	.....	.....	
11,000	44,000	.008333	.000833	.....	.....	
11,250	45,000	.009767	.001434	.008067	.008067	
11,500	46,000	.011000	.001233	.....	.....	
11,750	47,000	.011667	.000667			
12,000	48,000	.013333	.001666	.....	.....	
12,250	49,000	.014933	.001600	.....	.....	
12,500	50,000	.016467	.001534	.014467	.006400	
12,750	51,000	.017067	.000600	.....	.....	
13,000	52,000	.018133	.001066	.....	.....	
13,250	53,000	.019833	.001700	.....	.....	
13,500	54,000	.021833	.002000	.....	.....	
13,750	55,000	.023333	.001500	.....	.....	
14,000	56,000	.025333	.002000			
14,250	57,000	.027467	.002134	.....	.....	
14,500	58,000	.029500	.002033	.....	.....	
14,750	59,000	.032000	.002500	.....	.....	
15,000	60,000	.034333	.002333	.....	.....	
15,500	62,000	.038667	.004334	.....	.....	
16,000	64,000	.045067	.006400	.....	.....	
16,500	66,000	.052000	.006933	.....	.....	
17,000	68,000	.061500	.009500	.....	.....	
17,500	70,000	.075000	.013500			Tensile strength.
18,000	72,000	.1067	.0317	.....	.....	
18,400	73,600	.1833	.0766	.....	.....	

General summary.

Specific gravity.....	7.8590
Hardness.....	12.36
Tensile strength per square inch of original section..... pounds..	73,600
Elastic limit per square inch of original section..... do....	38,000
Elongation per inch after rupture..... inch..	0.2400
Elongation per inch under strain at elastic limit..... do....	.001233
Reduction in diameter at point of rupture..... do....	.114
Reduction in area after rupture, per centum of original section.....	36.4
Position of rupture.....	at middle of stem
Character of broken surface.....	silky; numerous cracks developed in surface of stem
Elongation of inch sections.....	".19, ".36*, ".17

No. 1136.

Marks, $\frac{8}{B} \frac{T_{42}}{T_2 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	-----	
2,500	10,000	.000300	.000200	0.	-----	
3,750	15,000	.000467	.000167	0.	-----	
5,000	20,000	.000633	.000166	0.	-----	
6,250	25,000	.000800	.000167	0.	-----	
7,500	30,000	.000967	.000167	0.	-----	
8,750	35,000	.001100	.000133	0.	-----	
9,000	36,000	.001133	.000033	-----	-----	
9,250	37,000	.001200	.000067	-----	-----	
9,500	38,000	.001300	.000100	-----	-----	
9,750	39,000	.001367	.000067	-----	-----	Elastic limit.
10,000	40,000	.001633	.000266	.002500	.002500	
10,250	41,000	.006000	.004367	-----	-----	
10,500	42,000	.007167	.001167	-----	-----	
10,750	43,000	.007800	.000633	-----	-----	
11,000	44,000	.008900	.001100	-----	-----	
11,250	45,000	.009867	.000967	.008200	.005700	
11,500	46,000	.011600	.001733	-----	-----	
11,750	47,000	.012533	.000933	-----	-----	
12,000	48,000	.013500	.000967	-----	-----	
12,250	49,000	.014667	.001167	-----	-----	
12,500	50,000	.016067	.001500	.014100	.005900	
12,750	51,000	.016767	.000700	-----	-----	
13,000	52,000	.018400	.001633	-----	-----	
13,250	53,000	.020000	.001600	-----	-----	
13,500	54,000	.021933	.001933	-----	-----	
13,750	55,000	.023433	.001500	-----	-----	
14,000	56,000	.025500	.002067	-----	-----	
14,250	57,000	.027667	.002167	-----	-----	
14,500	58,000	.029667	.002000	-----	-----	
14,750	59,000	.031333	.001666	-----	-----	
15,000	60,000	.033567	.002234	-----	-----	
15,500	62,000	.038267	.004700	-----	-----	
16,000	64,000	.043733	.005466	-----	-----	
16,500	66,000	.051167	.007434	-----	-----	
17,000	68,000	.060000	.008833	-----	-----	
17,500	70,000	.071667	.011667	-----	-----	
18,000	72,000	.0933	.021633	-----	-----	
18,500	74,000	.1267	.0334	-----	-----	
18,610	74,440	.1767	.0500	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	74,440
Elastic limit per square inch of original section	do...	39,000
Elongation per inch after rupture	inch..	0.2833
Elongation per inch under strain at elastic limit	do...	.001367
Reduction in diameter at point of rupture	do...	.194
Reduction in area after rupture, per centum of original section		57.0
Position of rupture	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface	silky; cup-shaped end	
Elongation of inch sections	".19, ".47*, ".19	

No. 1137.

Marks, $\frac{8 T_{42}}{B T_3 M}$
Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000300	.000200	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.001000	.000200	.000033	.000033	Elastic limit.
8,750	35,000	.001233	.000233	.000167	.000134	
9,000	36,000	.006933	.005700	.....	.....	
9,250	37,000	.007567	.000634	.....	.....	
9,500	38,000	.008667	.001100	.....	.....	
9,750	39,000	.009800	.001133	.....	.....	
10,000	40,000	.010833	.001033	.009500	.009433	
10,250	41,000	.011600	.000767	.....	.....	
10,500	42,000	.012900	.001300	.....	.....	
10,750	43,000	.014167	.001267	.....	.....	
11,000	44,000	.015500	.001333	.....	.....	
11,250	45,000	.017067	.001567	.....	.....	
11,500	46,000	.018367	.001300	.....	.....	
11,750	47,000	.019333	.000966	.....	.....	
12,000	48,000	.020933	.001600	.....	.....	
12,250	49,000	.022300	.001367	.....	.....	
12,500	50,000	.024067	.001767	.....	.....	
12,750	51,000	.025667	.001600	.....	.....	
13,000	52,000	.027167	.001500	.....	.....	
13,250	53,000	.029000	.001833	.....	.....	
13,500	54,000	.031333	.002133	.....	.....	
13,750	55,000	.033333	.002200	.....	.....	
14,000	56,000	.035167	.001834			Tensile strength.
14,250	57,000	.037267	.002100	.....	.....	
14,500	58,000	.040200	.002933	.....	.....	
14,750	59,000	.042500	.002300	.....	.....	
15,000	60,000	.046000	.003500	.....	.....	
15,500	62,000	.052833	.006833	.....	.....	
16,000	64,000	.060667	.007834	.....	.....	
16,500	66,000	.071667	.011000	.....	.....	
17,000	68,000	.0933	.021633	.....	.....	
17,500	70,000	.1133	.0200	.....	.....	
17,880	71,520	.1700	.0567	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	71,520
Elastic limit per square inch of original section	do ..	35,000
Elongation per inch after rupture	inch..	0.2667
Elongation per inch under strain at elastic limit.....	do...	.001233
Reduction in diameter at point of rupture	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....	1".10 from neck	
Character of broken surface	silky ; cracks in surface of stem near point of rupture	
Elongation of inch sections	".39*, ".25, ".16	

No. 1138.

Marks, $\frac{8}{M} \frac{T_{12}}{T_1 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	-----	
2,500	10,000	.000333	.000166	0.	-----	
3,750	15,000	.000533	.000200	0.	-----	
5,000	20,000	.000733	.000200	0.	-----	
6,250	25,000	.000900	.000167	0.	-----	
7,500	30,000	.001067	.000167	0.	-----	
8,750	35,000	.001200	.000133	0.	-----	
9,000	36,000	.001233	.000033	-----	-----	
9,250	37,000	.001267	.000034	-----	-----	
9,500	38,000	.001333	.000066	-----	-----	
9,750	39,000	.001367	.000034	-----	-----	
10,000	40,000	.001400	.000033	.000133	.000133	Elastic limit.
10,250	41,000	.001533	.000133	-----	-----	
10,500	42,000	.001667	.000134	-----	-----	
10,750	43,000	.003733	.002066	-----	-----	
11,000	44,000	.005133	.001400	-----	-----	
11,250	45,000	.006767	.001634	.005200	.005067	
11,500	46,000	.007500	.000733	-----	-----	
11,750	47,000	.008667	.001167	-----	-----	
12,000	48,000	.009833	.001166	-----	-----	
12,250	49,000	.011333	.001500	-----	-----	
12,500	50,000	.012667	.001334	-----	-----	
12,750	51,000	.013300	.000633	-----	-----	
13,000	52,000	.014467	.001167	-----	-----	
13,250	53,000	.016000	.001533	-----	-----	
13,500	54,000	.017567	.001567	-----	-----	
13,750	55,000	.018333	.000766	-----	-----	
14,000	56,000	.019500	.001167	-----	-----	
14,250	57,000	.020767	.001267	-----	-----	
14,500	58,000	.022167	.001400	-----	-----	
14,750	59,000	.023600	.001433	-----	-----	
15,000	60,000	.025333	.001733	-----	-----	
15,500	62,000	.029033	.003700	-----	-----	
16,000	64,000	.032667	.003634	-----	-----	
16,500	66,000	.038000	.005333	-----	-----	
17,000	68,000	.042000	.004000	-----	-----	
17,500	70,000	.047333	.005333	-----	-----	
18,000	72,000	.055333	.008000	-----	-----	
18,500	74,000	.064833	.009500	-----	-----	
19,000	76,000	.078000	.013167	-----	-----	
19,500	78,000	.1100	.0320	-----	-----	
19,720	78,880	.1533	.0433	-----	-----	Tensile strength.

General summary.

Specific gravity.....	7.8514
Hardness.....	14.98
Tensile strength per square inch of original section..... pounds..	78,880
Elastic limit per square inch of original section..... do...	40,000
Elongation per inch after rupture..... inch..	0.2200
Elongation per inch under strain at elastic limit..... do...	.001400
Reduction in diameter at point of rupture..... do...	.154
Reduction in area after rupture, per centum of original section.....	47.2
Position of rupture.....	$\frac{3}{8}$ inch from middle of stem
Character of broken surface.....	silky
Elongation of inch sections.....	".16, ".38*, ".12

No. 1139.

Marks, $\frac{8}{M} T_{42} O$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001133	.000200	.....	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001267	.000034	.....	.....	
10,000	40,000	.001300	.000033	.000033	.000033	
10,250	41,000	.001333	.000033			Elastic limit.
10,500	42,000	.001367	.000034	.....	.....	
10,750	43,000	.001500	.000133	.....	.....	
11,000	44,000	.002233	.000733	.....	.....	
11,250	45,000	.004033	.001800	.002433	.002400	
11,500	46,000	.005700	.001667	.....	.....	
11,750	47,000	.006833	.001133	.....	.....	
12,000	48,000	.008100	.001267	.....	.....	
12,250	49,000	.009100	.001000	.....	.....	
12,500	50,000	.010667	.001567	.008733	.006300	
12,750	51,000	.011333	.000666	.....	.....	
13,000	52,000	.012267	.000934	.....	.....	
13,250	53,000	.013267	.001000	.....	.....	
13,500	54,000	.014733	.001466	.....	.....	
13,750	55,000	.015667	.000934	.....	.....	
14,000	56,000	.017067	.001400			Tensile strength.
14,250	57,000	.018167	.001100	.....	.....	
14,500	58,000	.019500	.001333	.....	.....	
14,750	59,000	.021067	.001567	.....	.....	
15,000	60,000	.023000	.001933	.....	.....	
15,500	62,000	.025567	.002567	.....	.....	
16,000	64,000	.029000	.003433	.....	.....	
16,500	66,000	.033000	.004000	.....	.....	
17,000	68,000	.037500	.004500	.....	.....	
17,500	70,000	.042833	.005333	.....	.....	
18,000	72,000	.048667	.005834	.....	.....	
18,500	74,000	.056667	.008000	.....	.....	
19,000	76,000	.066000	.009333	.....	.....	
19,500	78,000	.082000	.0160	.....	.....	
20,000	80,000	.1133	.0313	.....	.....	
20,140	80,560	.1600	.0467	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds...	80,560
Elastic limit per square inch of original section	do...	42,000
Elongation per inch after rupture	inch...	0.2433
Elongation per inch under strain at elastic limit	do...	.001367
Reduction in diameter at point of rupture	do...	.154
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	".15 from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".20, ".40*, ".13	

No. 1140.

Marks, $\frac{8 T_{42}}{M T_3 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000233	.000233	.000067	.000067	
2,500	10,000	.000433	.000200	.000067	0.	
3,750	15,000	.000633	.000200	.000100	.000033	
5,000	20,000	.000800	.000167	.000133	.000033	
6,250	25,000	.000967	.000167	.000133	0.	
7,500	30,000	.001133	.000166	.000133	0.	
8,750	35,000	.001433	.000300	.000300	.000167	
9,000	36,000	.001533	.000100			Elastic limit.
9,250	37,000	.002133	.000600	.....	.....	
9,500	38,000	.002867	.000734	.....	.....	
9,750	39,000	.006233	.003366	.....	.....	
10,000	40,000	.008367	.002134	.006900	.006600	
10,250	41,000	.009000	.000633	.....	.....	
10,500	42,000	.009533	.000533	.....	.....	
10,750	43,000	.010633	.001100	.....	.....	
11,000	44,000	.011933	.001300	.....	.....	
11,250	45,000	.013033	.001100	.....	.....	
11,500	46,000	.014333	.001300	.....	.....	
11,750	47,000	.015567	.001234	.....	.....	
12,000	48,000	.016733	.001166	.....	.....	
12,250	49,000	.017800	.001067	.....	.....	
12,500	50,000	.018833	.001033	.....	.....	
12,750	51,000	.020067	.001234	.....	.....	
13,000	52,000	.021500	.001433	.....	.....	
13,250	53,000	.022667	.001167	.....	.....	
13,500	54,000	.024367	.001600	.....	.....	
13,750	55,000	.025567	.001200	.....	.....	
14,000	56,000	.027533	.001966	.....	.....	
14,250	57,000	.029067	.001534	.....	.....	
14,500	58,000	.031333	.002266	.....	.....	
14,750	59,000	.032833	.001500	.....	.....	
15,000	60,000	.035500	.002667	.....	.....	
15,500	62,000	.039333	.003833	.....	.....	
16,000	64,000	.044667	.005334	.....	.....	
16,500	66,000	.051167	.006500	.....	.....	
17,000	68,000	.057833	.006666	.....	.....	
17,500	70,000	.067667	.009834	.....	.....	
18,000	72,000	.0867	.021033	.....	.....	
18,500	74,000	.1033	.0166	.....	.....	
19,000	76,000	.1400	.0367			Tensile strength.
19,020	76,080	.1767	.0367	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	76,080
Elastic limit per square inch of original section	do...	36,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit	do...	.001533
Reduction in diameter at point of rupture	do...	.064
Reduction in area after rupture, per centum of original section		21.4
Position of rupture	".4 from middle of stem	
Character of broken surface	granular; dull flaky spot at circumference	
Elongation of inch sections	".19, ".24*, ".17	

No. 1141.

Marks, $\frac{8}{B} \frac{T_{43}}{T_1 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000767	.000134	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
10,000	40,000	.001267	.000167	.000033	.000033	Elastic limit.
10,250	41,000	.004667	.003400	.....	.....	
10,500	42,000	.006100	.001433	.....	.....	
10,750	43,000	.006667	.000567	.....	.....	
11,000	44,000	.007933	.001266	.....	.....	
11,250	45,000	.009000	.001067	.007367	.007334	
11,500	46,000	.009900	.000900	.....	.....	
11,750	47,000	.010867	.000967	.....	.....	
12,000	48,000	.012167	.001300	.....	.....	
12,250	49,000	.014000	.001833	.....	.....	
12,500	50,000	.015267	.001267	.....	.....	
12,750	51,000	.016433	.001166	.....	.....	
13,000	52,000	.017833	.001400	.....	.....	
13,250	53,000	.019033	.001200	.....	.....	
13,500	54,000	.020800	.001767	.....	.....	
13,750	55,000	.022167	.001367	.....	.....	
14,000	56,000	.024500	.002333	.....	.....	
14,250	57,000	.025667	.001167	.....	.....	
14,500	58,000	.027933	.002266	.....	.....	
14,750	59,000	.029800	.001867	.....	.....	
15,000	60,000	.031933	.002133	.....	.....	
15,500	62,000	.036400	.004467	.....	.....	
16,000	64,000	.041800	.005400	.....	.....	
16,500	66,000	.049500	.007700	.....	.....	
17,000	68,000	.057333	.007833	.....	.....	
17,500	70,000	.068500	.011167	.....	.....	
18,000	72,000	.0933	.0248	.....	.....	
18,500	74,000	.1133	.0200	.....	.....	
18,700	74,800	.1733	.0600			Tensile strength.

General summary.

Specific gravity.....	7.8571
Hardness.....	12.72
Tensile strength per square inch of original section..... pounds..	74,800
Elastic limit per square inch of original section..... do...	40,000
Elongation per inch after rupture..... inch..	0.2500
Elongation per inch under strain at elastic limit..... do...	.001267
Reduction in diameter at point of rupture..... do...	.164
Reduction in area after rupture, per centum of original section.....	49.7
Position of rupture.....	at middle of stem
Character of broken surface.....	silky
Elongation of inch sections.....	".16, ".44*, ".15

No. 1142.

Marks, $\frac{8 T_{43}}{B T_2 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000467	.000200	0.	.....	
5,000	20,000	.000667	.000200	0.	.....	
6,250	25,000	.000800	.000133	0.	.....	
7,500	30,000	.000967	.000167	.000033	.000033	
8,750	35,000	.001133	.000166	.000067	.000034	
9,000	36,000	.001200	.000067	.....	.....	
9,250	37,000	.001233	.000033	.....	.....	
9,500	38,000	.001267	.000034			Elastic limit.
9,750	39,000	.001367	.000100	.....	.....	
10,000	40,000	.001400	.000033	.000200	.000133	
10,250	41,000	.003367	.001967	.....	.....	
10,500	42,000	.005767	.001400	.....	.....	
10,750	43,000	.006533	.000766	.....	.....	
11,000	44,000	.007500	.000967	.....	.....	
11,250	45,000	.008733	.001233	.007067	.006867	
11,500	46,000	.009500	.000767	.....	.....	
11,750	47,000	.010400	.000900	.....	.....	
12,000	48,000	.012067	.001667			Tensile strength.
12,250	49,000	.013233	.001166	.....	.....	
12,500	50,000	.014267	.001034	.....	.....	
12,750	51,000	.015400	.001133	.....	.....	
13,000	52,000	.016867	.001467	.....	.....	
13,250	53,000	.018000	.001133	.....	.....	
13,500	54,000	.019567	.001567	.....	.....	
13,750	55,000	.020867	.001300	.....	.....	
14,000	56,000	.022600	.001733	.....	.....	
14,250	57,000	.024100	.001500	.....	.....	
14,500	58,000	.026000	.001900			Tensile strength.
14,750	59,000	.027400	.001400	.....	.....	
15,000	60,000	.029867	.002467	.....	.....	
15,500	62,000	.033733	.003866	.....	.....	
16,000	64,000	.038167	.004434	.....	.....	
16,500	66,000	.044333	.006166	.....	.....	
17,000	68,000	.051667	.007334	.....	.....	
17,500	70,000	.059500	.007833	.....	.....	
18,000	72,000	.070667	.011167	.....	.....	
18,500	74,000	.088667	.018000	.....	.....	
19,000	76,000	.1400	.051333	.....	.....	
19,010	76,040	.1533	.0133	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	76,040
Elastic limit per square inch of original section	do...	40,000
Elongation per inch after rupture	inch..	0.2400
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.174
Reduction in area after rupture, per centum of original section		52.2
Position of rupture	".85 from neck	
Character of broken surface	silky	
Elongation of inch sections	".44*, ".17, ".11	

No. 1143.

Marks, $8 T_{43}$
 $B T_3 M$
 Diameter, 1.564 .

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001133	0.			Elastic limit.
9,500	38,000	.001167	.000034	.....	.....	
9,750	39,000	.001200	.000033	.....	.....	
10,000	40,000	.002500	.001300	.001267	.001267	
10,250	41,000	.004967	.002467	.....	.....	
10,500	42,000	.006500	.001533	.....	.....	
10,750	43,000	.007600	.001100	.....	.....	
11,000	44,000	.008733	.001133	.....	.....	
11,250	45,000	.009633	.000900	.008033	.006766	
11,500	46,000	.010767	.001134			Tensile strength.
11,750	47,000	.011500	.000733	.....	.....	
12,000	48,000	.012833	.001333	.....	.....	
12,250	49,000	.013933	.001100	.....	.....	
12,500	50,000	.015500	.001567	.....	.....	
12,750	51,000	.016867	.001367	.....	.....	
13,000	52,000	.018333	.001466	.....	.....	
13,250	53,000	.019500	.001167	.....	.....	
13,500	54,000	.021167	.001667	.....	.....	
13,750	55,000	.022900	.001733	.....	.....	
14,000	56,000	.024167	.001267	.....	.....	
14,250	57,000	.026000	.001833	.....	.....	
14,500	58,000	.028300	.002300	.....	.....	
14,750	59,000	.030000	.001700	.....	.....	
15,000	60,000	.032333	.002333	.....	.....	
15,500	62,000	.036833	.004500	.....	.....	
16,000	64,000	.042333	.005500	.....	.....	
16,500	66,000	.048333	.006000	.....	.....	
17,000	68,000	.055500	.007167	.....	.....	
17,500	70,000	.065833	.010333	.....	.....	
18,000	72,000	.081667	.015834	.....	.....	
18,500	74,000	.1133	.031633	.....	.....	
18,760	75,040	.1767	.0634	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	75,040
Elastic limit per square inch of original section	do...	39,000
Elongation per inch after rupture	inch..	0.2900
Elongation per inch under strain at elastic limit	do...	.001200
Reduction in diameter at point of rupture	do...	.184
Reduction in area after rupture, per centum of original section		54.6
Position of rupture	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	.21, .49, .17	

No. 1144.

Marks, $\frac{8}{M} \frac{T_{43}}{T_1 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	-----	
2,500	10,000	.000367	.000200	0.	-----	
3,750	15,000	.000533	.000166	0.	-----	
5,000	20,000	.000700	.000167	.000033	.000033	
6,250	25,000	.000867	.000167	.000033	0.	
7,500	30,000	.001033	.000166	.000033	0.	
8,750	35,000	.001200	.000167	.000067	.000034	
9,000	36,000	.001267	.000067	-----	-----	
9,250	37,000	.001333	.000066	-----	-----	Elastic limit.
9,500	38,000	.003133	.001800	-----	-----	
9,750	39,000	.007833	.004700	-----	-----	
10,000	40,000	.009633	.001800	.008067	.008000	
10,250	41,000	.010167	.000534	-----	-----	
10,500	42,000	.010800	.000633	-----	-----	
10,750	43,000	.011600	.000800	-----	-----	
11,000	44,000	.012700	.001100	-----	-----	
11,250	45,000	.013600	.000900	.011900	.003833	
11,500	46,000	.015233	.001633	-----	-----	
11,750	47,000	.015833	.000600	-----	-----	
12,000	48,000	.017033	.001200	-----	-----	
12,250	49,000	.018167	.001134	-----	-----	
12,500	50,000	.019500	.001333	-----	-----	
12,750	51,000	.020500	.001000	-----	-----	
13,000	52,000	.022067	.001567	-----	-----	
13,250	53,000	.023267	.001200	-----	-----	
13,500	54,000	.024933	.001666	-----	-----	
13,750	55,000	.026333	.001400	-----	-----	
14,000	56,000	.027867	.001534	-----	-----	
14,250	57,000	.029200	.001333	-----	-----	
14,500	58,000	.031167	.001967	-----	-----	
14,750	59,000	.032733	.001566	-----	-----	
15,000	60,000	.035000	.002267	-----	-----	
15,500	62,000	.039167	.004167	-----	-----	
16,000	64,000	.043733	.004566	-----	-----	
16,500	66,000	.049167	.005434	-----	-----	
17,000	68,000	.054500	.005333	-----	-----	
17,500	70,000	.063000	.008500	-----	-----	
18,000	72,000	.072333	.009333	-----	-----	
18,500	74,000	.0900	.017667	-----	-----	
19,000	76,000	.1033	.0133	-----	-----	
19,500	78,000	.1367	.0334	-----	-----	
19,610	78,440	.1733	.0366	-----	-----	Tensile strength.

General summary.

Specific gravity.....	7.8537
Hardness.....	12.78
Tensile strength per square inch of original section.....	pounds.. 78,440
Elastic limit per square inch of original section.....	do... 37,000
Elongation per inch after rupture.....	inch.. 0.2333
Elongation per inch under strain at elastic limit.....	do... .001333
Reduction in diameter at point of rupture.....	do... .124
Reduction in area after rupture, per centum of original section.....	39.2
Position of rupture.....	1 inch from neck
Character of broken surface.....	silky; 50 per centum of surface slightly granular
Elongation of inch sections.....	".35", ".18, ".17

No. 1143.

Marks, $\frac{8}{B} \frac{T_{43}}{T_3} M$ Diameter, $\frac{11}{16}$.564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001133	0.	.....	.....	
9,500	38,000	.001167	.000034	.....	.....	
9,750	39,000	.001200	.000033			Elastic limit.
10,000	40,000	.002500	.001300	.001267	.001267	
10,250	41,000	.004967	.002467	.....	.....	
10,500	42,000	.006500	.001533	.....	.....	
10,750	43,000	.007600	.001100	.....	.....	
11,000	44,000	.008733	.001133	.....	.....	
11,250	45,000	.009633	.000900	.008033	.006766	
11,500	46,000	.010767	.001134	.....	.....	
11,750	47,000	.011500	.000733	.....	.....	
12,000	48,000	.012833	.001333	.....	.....	
12,250	49,000	.013933	.001100	.....	.....	
12,500	50,000	.015500	.001567	.....	.....	
12,750	51,000	.016867	.001367	.....	.....	
13,000	52,000	.018333	.001466	.....	.....	
13,250	53,000	.019500	.001167	.....	.....	
13,500	54,000	.021167	.001667	.....	.....	
13,750	55,000	.022900	.001733	.....	.....	
14,000	56,000	.024167	.001267	.....	.....	
14,250	57,000	.026000	.001833	.....	.....	
14,500	58,000	.028300	.002300	.....	.....	
14,750	59,000	.030000	.001700	.....	.....	
15,000	60,000	.032333	.002333	.....	.....	
15,500	62,000	.036833	.004500	.....	.....	
16,000	64,000	.042333	.005500	.....	.....	
16,500	66,000	.048333	.006000	.....	.....	
17,000	68,000	.055500	.007167	.....	.....	
17,500	70,000	.065833	.010333	.....	.....	
18,000	72,000	.081667	.015834	.....	.....	
18,500	74,000	.1133	.031633	.....	.....	
18,760	75,040	.1767	.0634			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	75,040
Elastic limit per square inch of original section	do...	39,000
Elongation per inch after rupture	inch..	0.2900
Elongation per inch under strain at elastic limit	do...	.001200
Reduction in diameter at point of rupture	do...	.184
Reduction in area after rupture, per centum of original section		54.6
Position of rupture	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	.21, ".49, ".17	

No. 1144.

Marks, $\frac{8}{M} T_{43}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	-----	
2,500	10,000	.000367	.000200	0.	-----	
3,750	15,000	.000533	.000166	0.	-----	
5,000	20,000	.000700	.000167	.000033	.000033	
6,250	25,000	.000867	.000167	.000033	0.	
7,500	30,000	.001033	.000166	.000033	0.	
8,750	35,000	.001200	.000167	.000067	.000034	
9,000	36,000	.001267	.000067	-----	-----	
9,250	37,000	.001333	.000066	-----	-----	Elastic limit.
9,500	38,000	.001333	.001800	-----	-----	
9,750	39,000	.001833	.004700	-----	-----	
10,000	40,000	.009633	.001800	.008067	.008000	
10,250	41,000	.010167	.000534	-----	-----	
10,500	42,000	.010800	.000633	-----	-----	
10,750	43,000	.011600	.000800	-----	-----	
11,000	44,000	.012700	.001100	-----	-----	
11,250	45,000	.013600	.000900	.011900	.003833	
11,500	46,000	.015233	.001633	-----	-----	
11,750	47,000	.015833	.000600	-----	-----	
12,000	48,000	.017033	.001200	-----	-----	
12,250	49,000	.018167	.001134	-----	-----	
12,500	50,000	.019500	.001333	-----	-----	
12,750	51,000	.020500	.001000	-----	-----	
13,000	52,000	.022067	.001567	-----	-----	
13,250	53,000	.023267	.001200	-----	-----	
13,500	54,000	.024933	.001666	-----	-----	
13,750	55,000	.026333	.001400	-----	-----	
14,000	56,000	.027867	.001534	-----	-----	
14,250	57,000	.029200	.001333	-----	-----	
14,500	58,000	.031167	.001967	-----	-----	
14,750	59,000	.032733	.001566	-----	-----	
15,000	60,000	.035000	.002267	-----	-----	
15,500	62,000	.039167	.004167	-----	-----	
16,000	64,000	.043733	.004566	-----	-----	
16,500	66,000	.049167	.005434	-----	-----	
17,000	68,000	.054500	.005333	-----	-----	
17,500	70,000	.063000	.008500	-----	-----	
18,000	72,000	.072333	.009333	-----	-----	
18,500	74,000	.0900	.017667	-----	-----	
19,000	76,000	.1033	.0133	-----	-----	
19,500	78,000	.1367	.0334	-----	-----	
19,610	78,440	.1733	.0366	-----	-----	Tensile strength.

General summary.

Specific gravity.....	7.8537
Hardness.....	12.78
Tensile strength per square inch of original section..... pounds..	78,440
Elastic limit per square inch of original section..... do....	37,000
Elongation per inch after rupture..... inch..	0.2333
Elongation per inch under strain at elastic limit..... do....	.001333
Reduction in diameter at point of rupture..... do....	.124
Reduction in area after rupture, per centum of original section.....	39.2
Position of rupture.....	1 inch from neck
Character of broken surface.....	silky; 50 per centum of surface slightly granular
Elongation of inch sections.....	".35", ".18, ".17

No. 1145.

Marks, $^8T_{43}$
 $M T_2 O$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch..</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000467	.000134	0.	.....	
5,000	20,000	.000667	.000200	.000033	.000033	
6,250	25,000	.000800	.000133	.000033	0.	
7,500	30,000	.000967	.000167	.000033	0.	
8,750	35,000	.001133	.000166	.000067	.000034	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033			Elastic limit.
9,750	39,000	.007067	.005834	.....	.....	
10,000	40,000	.009933	.002866	.008400	.008333	
10,250	41,000	.010767	.000834	.....	.....	
10,500	42,000	.012167	.001400	.....	.....	
10,750	43,000	.012967	.000800	.....	.....	
11,000	44,000	.014367	.001400	.....	.....	
11,250	45,000	.015200	.000833	.013433	.005033	
11,500	46,000	.015800	.000600	.....	.....	
11,750	47,000	.016500	.000700	.....	.....	
12,000	48,000	.018733	.002233			Tensile strength.
12,250	49,000	.019333	.000600	.....	.....	
12,500	50,000	.020800	.001467	.....	.....	
12,750	51,000	.022333	.001533	.....	.....	
13,000	52,000	.023833	.001500	.....	.....	
13,250	53,000	.025167	.001334	.....	.....	
13,500	54,000	.026833	.001666	.....	.....	
13,750	55,000	.028667	.001834	.....	.....	
14,000	56,000	.030267	.001600	.....	.....	
14,250	57,000	.031733	.001466	.....	.....	
14,500	58,000	.033767	.002034	.....	.....	
14,750	59,000	.036333	.002566	.....	.....	
15,000	60,000	.038500	.002167	.....	.....	
15,500	62,000	.043200	.004700	.....	.....	
16,000	64,000	.048767	.005567	.....	.....	
16,500	66,000	.055333	.006566	.....	.....	
17,000	68,000	.063000	.007667	.....	.....	
17,500	70,000	.073667	.010667	.....	.....	
18,000	72,000	.0933	.019633	.....	.....	
18,500	74,000	.1100	.0167	.....	.....	
18,980	75,920	.1800	.0700	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	75,920
Elastic limit per square inch of original section	do...	38,000
Elongation per inch after rupture	inch..	0.2433
Elongation per inch under strain at elastic limit	do...	.001233
Reduction in diameter at point of rupture	do...	.124
Reduction in area after rupture, per centum of original section		39.2
Position of rupture	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	" .19, ".38*, ".16	

No. 1146.

Marks, $\frac{8}{M} T_{43}$

Diameter, ".563.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000900	.000133	0.	.....	
8,750	35,000	.001100	.000200	.000033	.000033	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001200	.000067			Elastic limit.
9,500	38,000	.001367	.000167	.....	.....	
9,750	39,000	.003133	.001766	.....	.....	
10,000	40,000	.005133	.002000	.....	.....	
10,250	41,000	.006167	.001034	.....	.....	
10,500	42,000	.007167	.001000	.....	.....	
10,750	43,000	.007933	.000766	.....	.....	
11,000	44,000	.009033	.001100	.....	.....	
11,250	45,000	.010200	.001167	.008533	.008500	
11,500	46,000	.010633	.000433	.....	.....	
11,750	47,000	.011500	.000867	.....	.....	
12,000	48,000	.012833	.001333	.....	.....	
12,250	49,000	.013867	.001034	.....	.....	
12,500	50,000	.014967	.001100	.....	.....	
12,750	51,000	.016167	.001200	.....	.....	
13,000	52,000	.017400	.001233	.....	.....	
13,250	53,000	.018600	.001200	.....	.....	
13,500	54,000	.019767	.001167	.....	.....	
13,750	55,000	.021000	.001233	.....	.....	
14,000	56,000	.022533	.001533	.....	.....	
14,250	57,000	.023967	.001434	.....	.....	
14,500	58,000	.025267	.001300	.....	.....	
14,750	59,000	.026700	.001433	.....	.....	
15,000	60,000	.028767	.002067	.....	.....	
15,500	62,000	.032033	.003266	.....	.....	
16,000	64,000	.036333	.004300	.....	.....	
16,500	66,000	.040833	.004500	.....	.....	
17,000	68,000	.046333	.005500	.....	.....	
17,500	70,000	.053000	.006667	.....	.....	
18,000	72,000	.061333	.008333	.....	.....	
18,500	74,000	.071667	.010334	.....	.....	
19,000	76,000	.087667	.016000	.....	.....	
19,500	78,000	.1233	.035633	.....	.....	
19,670	78,680	.1600	.0367			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	78,680
Elastic limit per square inch of original section.....	do...	37,000
Elongation per inch after rupture.....	inch..	0.2033
Elongation per inch under strain at elastic limit.....	do...	.001200
Reduction in diameter at point of rupture.....	do...	.063
Reduction in area after rupture, per centum of original section.....		21.4
Position of rupture.....	".1 from middle of stem	
Character of broken surface.....	granular; dull, flaky spot at circumference	
Elongation of inch sections.....	".21, ".24*, ".16	

H. Ex. 31—53

No. 2152.

Marks, $\frac{8}{B} \frac{T_{44}}{T_1 I}$
Diameter, ".564.
Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
10,000	40,000	.001367	.000200	.000067	.000067	Elastic limit.
10,250	41,000	.003500	.002133	.....	.....	
10,500	42,000	.005100	.001600	.....	.....	
10,750	43,000	.006400	.001300	.....	.....	
11,000	44,000	.009000	.002600	.....	.....	
11,250	45,000	.010233	.001233	.....	.....	
11,500	46,000	.011500	.001267	.....	.....	
11,750	47,000	.012500	.001000	.....	.....	
12,000	48,000	.013833	.001333	.....	.....	
12,250	49,000	.015167	.001334	.....	.....	
12,500	50,000	.016500	.001333	.....	.....	
13,000	52,000	.019067	.002567	.....	.....	
13,500	54,000	.022500	.003433	.....	.....	
14,000	56,000	.025667	.003167	.....	.....	
14,500	58,000	.029667	.004000	.....	.....	
15,000	60,000	.033167	.003500	.....	.....	
15,500	62,000	.038000	.004833	.....	.....	
16,000	64,000	.043267	.005267	.....	.....	
16,500	66,000	.049667	.006400	.....	.....	
17,000	68,000	.056667	.007000	.....	.....	
17,500	70,000	.0667	.010033	.....	.....	
18,000	72,000	.0800	.0133	.....	.....	
18,500	74,000	.1033	.0133			Tensile strength.
18,850	75,400	.1600	.0567	.....	.....	

General summary.

Specific gravity.....	7,8568
Hardness.....	12.36
Tensile strength per square inch of original section.....pounds..	75,400
Elastic limit per square inch of original section.....do...	40,000
Elongation per inch after rupture.....inch..	0.1767
Elongation per inch under strain at elastic limit.....do...	.001367
Reduction in diameter at point of rupture.....do...	.154
Reduction in area after rupture, per centum of original section.....	47.2
Position of rupture.....	".55 from neck
Character of broken surface, granular, 70 per centum; dull silky, 30 per centum; opened cracks in surface of stem.	
Elongation of inch sections.....	".19*, ".16, ".18

No. 2153.

Marks, $\frac{8}{B} T_{44}$
 $\frac{B}{T_2} O$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000360	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000767	.000134	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001067	.000134	0.	.....	
10,000	40,000	.001233	.000166	0.	.....	
10,250	41,000	.001300	.000067	.....	.....	
10,500	42,000	.001367	.000067	.....	.....	
10,750	43,000	.001400	.000033	.....	.....	
11,000	44,000	.001433	.000033	.....	.....	Elastic limit.
11,250	45,000	.004333	.002900	.....	.....	
11,500	46,000	.007467	.003134	.....	.....	
11,750	47,000	.008667	.001200	.....	.....	
12,000	48,000	.009833	.001166	.....	.....	
12,250	49,000	.010700	.000867	.....	.....	
12,500	50,000	.011667	.000967	.....	.....	
13,000	52,000	.013733	.002066	.....	.....	
13,500	54,000	.017067	.003334	.....	.....	
14,000	56,000	.020100	.003033	.....	.....	
14,500	58,000	.023333	.003233	.....	.....	
15,000	60,000	.026167	.002834	.....	.....	
15,500	62,000	.029467	.003300	.....	.....	
16,000	64,000	.033267	.003800	.....	.....	
16,500	66,000	.037833	.004566	.....	.....	
17,000	68,000	.043500	.005667	.....	.....	
17,500	70,000	.051167	.007667	.....	.....	
18,000	72,000	.059500	.008333	.....	.....	
18,500	74,000	.071333	.011833	.....	.....	
19,000	76,000	.0967	.025367	.....	.....	
19,400	77,600	.1600	.0633	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	77,600
Elastic limit per square inch of original section	do...	44,000
Elongation per inch after rupture	inch..	0.2600
Elongation per inch under strain at elastic limit	do...	.001433
Reduction in diameter at point of rupture	do...	.175
Reduction in area after rupture, per centum of original section		52.2
Position of rupture	$\frac{1}{2}$ inch from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".24, ".41*, ".13	

No. 2154.

Marks, $\frac{8 T_{44}}{B T_3 M}$
 Diameter, $\frac{1}{2}$ inch.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000833	.000200	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001133	.000133	0.	.....	
9,000	36,000	.001167	.000134	.....	.....	
9,250	37,000	.001233	.000066	.....	.....	
9,500	38,000	.001267	.000034	.....	.....	
9,750	39,000	.001300	.000033	.....	.....	
10,000	40,000	.001367	.000067	.....	.....	
10,250	41,000	.001400	.000033			Elastic limit.
10,500	42,000	.001500	.000100	.....	.....	
10,750	43,000	.003400	.001900	.....	.....	
11,000	44,000	.005333	.001933	.....	.....	
11,250	45,000	.006533	.001200	.....	.....	
11,500	46,000	.007800	.001267	.....	.....	
11,750	47,000	.008700	.000900	.....	.....	
12,000	48,000	.009833	.001133	.....	.....	
12,250	49,000	.011067	.001234	.....	.....	
12,500	50,000	.012033	.000966	.....	.....	
13,000	52,000	.014267	.002234	.....	.....	
13,500	54,000	.016733	.002466	.....	.....	
14,000	56,000	.019367	.002634	.....	.....	
14,500	58,000	.022833	.003466	.....	.....	
15,000	60,000	.025833	.003000	.....	.....	
15,500	62,000	.029667	.003834	.....	.....	
16,000	64,000	.034000	.004333	.....	.....	
16,500	66,000	.037933	.003933	.....	.....	
17,000	68,000	.043333	.005400	.....	.....	
17,500	70,000	.051333	.008000	.....	.....	
18,000	72,000	.058000	.006667	.....	.....	
18,500	74,000	.068833	.010833	.....	.....	
19,000	76,000	.0900	.021167			Tensile strength.
19,500	78,000	.1433	.0533	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	78,000
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.2633
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.174
Reduction in area after rupture, per centum of original section.....		52.2
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	" .18, ".45*, ".16	

No. 2155.

Marks, $\frac{8 T_{44}}{M T_1 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000300	.000200	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001133	0.	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001233	.000066	.....	.....	
9,750	39,000	.001267	.000024	.....	.....	
10,000	40,000	.001367	.000100	.000033	.000033	
10,250	41,000	.001400	.000033	.....	.....	
10,500	42,000	.001400	0.	.....	.....	
10,750	43,000	.001433	.000033	.....	.....	
11,000	44,000	.001467	.000034	.....	.....	
11,250	45,000	.001500	.000033	.000033	.000033	Elastic limit.
11,500	46,000	.001567	.000067	.....	.....	
11,750	47,000	.001700	.000133	.....	.....	
12,000	48,000	.005000	.003300	.....	.....	
12,250	49,000	.007667	.002667	.....	.....	
12,500	50,000	.009000	.001333	.....	.....	
12,750	51,000	.010333	.001333	.....	.....	
13,000	52,000	.010933	.000600	.....	.....	
13,250	53,000	.011667	.000734	.....	.....	
13,500	54,000	.012700	.001033	.....	.....	
13,750	55,000	.013733	.001033	.....	.....	
14,000	56,000	.015167	.001434	.....	.....	
14,250	57,000	.016600	.001433	.....	.....	
14,500	58,000	.018000	.001400	.....	.....	
14,750	59,000	.019000	.001000	.....	.....	
15,000	60,000	.020400	.001400	.....	.....	
15,500	62,000	.023500	.003100	.....	.....	
16,000	64,000	.026833	.003333	.....	.....	
16,500	66,000	.030400	.003567	.....	.....	
17,000	68,000	.034500	.004100	.....	.....	
17,500	70,000	.039000	.005500	.....	.....	
18,000	72,000	.044000	.005000	.....	.....	
18,500	74,000	.050667	.006667	.....	.....	
19,000	76,000	.058833	.008166	.....	.....	
19,500	78,000	.070500	.011667	.....	.....	
20,000	80,000	.0933	.0228			Tensile strength.
20,410	81,640	.1567	.0634	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	81,640
Elastic limit per square inch of original section	do...	46,000
Elongation per inch after rupture	inch..	0.1567
Elongation per inch under strain at elastic limit	do...	.001567
Reduction in diameter at point of rupture	do...	.064
Reduction in area after rupture, per centum of original section		21.4
Position of rupture	".70 from neck	
Character of broken surface, granular; dull spot at circumference; opened cracks in surface of stem		
Elongation of inch sections	".20*, ".13, ".14	

No. 2156.

Marks, $\frac{8}{M} T_{44}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001133	.000133	0.	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001267	.000034	.....	.....	
10,000	40,000	.001333	.000066	0.	.....	
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.001400	.000033			Elastic limit.
10,750	43,000	.001433	.000033	.....	.....	
11,000	44,000	.009000	.007567	.....	.....	
11,250	45,000	.010333	.001333	.....	.....	
11,500	46,000	.011733	.001400	.....	.....	
11,750	47,000	.012267	.000534	.....	.....	
12,000	48,000	.012900	.000633	.....	.....	
12,250	49,000	.014000	.001100	.....	.....	
12,500	50,000	.015367	.001367	.....	.....	
12,750	51,000	.016667	.001300	.....	.....	
13,000	52,000	.018167	.001500	.....	.....	
13,250	53,000	.019333	.001166	.....	.....	
13,500	54,000	.020333	.001000	.....	.....	
13,750	55,000	.021500	.001167	.....	.....	
14,000	56,000	.023000	.001500			Tensile strength.
14,250	57,000	.024867	.001867	.....	.....	
14,500	58,000	.026367	.001500	.....	.....	
14,750	59,000	.027733	.001366	.....	.....	
15,000	60,000	.030000	.002267	.....	.....	
15,500	62,000	.034000	.004000	.....	.....	
16,000	64,000	.038333	.004333	.....	.....	
16,500	66,000	.043333	.005000	.....	.....	
17,000	68,000	.049167	.005834	.....	.....	
17,500	70,000	.056667	.007500	.....	.....	
18,000	72,000	.065000	.008333	.....	.....	
18,500	74,000	.0767	.0117	.....	.....	
19,000	76,000	.0967	.0200	.....	.....	
19,500	78,000	.1400	.0433	.....	.....	
19,520	78,080	.1600	.0200	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	78,080
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	0.2433
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.161
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	".80 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".43, ".17, ".13	

No. 2157.

Marks, ^{8 T₄₄}_{M T₃ M}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	-----	
2,500	10,000	.000333	.000166	0.	-----	
3,750	15,000	.000467	.000134	0.	-----	
5,000	20,000	.000633	.000166	0.	-----	
6,250	25,000	.000800	.000167	0.	-----	
7,500	30,000	.000967	.000167	0.	-----	
8,750	35,000	.001133	.000166	0.	-----	
9,000	36,000	.001167	.000034	-----	-----	
9,250	37,000	.001200	.000033	-----	-----	Elastic limit.
9,500	38,000	.001233	.000033	-----	-----	
9,750	39,000	.001300	.000067	-----	-----	
10,000	40,000	.001433	.000133	-----	-----	
10,250	41,000	.009867	.008434	-----	-----	
10,500	42,000	.011033	.001166	-----	-----	
10,750	43,000	.012000	.000967	-----	-----	
11,000	44,000	.013000	.001000	-----	-----	
11,250	45,000	.014000	.001000	-----	-----	
11,500	46,000	.015000	.001000	-----	-----	
11,750	47,000	.016100	.001100	-----	-----	
12,000	48,000	.017400	.001300	-----	-----	
12,250	49,000	.018600	.001200	-----	-----	
12,500	50,000	.019933	.001333	-----	-----	
13,000	52,000	.022333	.002400	-----	-----	
13,500	54,000	.025667	.003334	-----	-----	
14,000	56,000	.028667	.003000	-----	-----	
14,500	58,000	.032333	.003666	-----	-----	Tensile strength.
15,000	60,000	.036333	.004000	-----	-----	
15,500	62,000	.040833	.004500	-----	-----	
16,000	64,000	.046333	.005500	-----	-----	
16,500	66,000	.054000	.007667	-----	-----	
17,000	68,000	.062000	.008000	-----	-----	
17,500	70,000	.0700	.0080	-----	-----	
18,000	72,000	.0833	.0133	-----	-----	
18,500	74,000	.1000	.0167	-----	-----	
19,000	76,000	.1267	.0267	-----	-----	
19,100	76,400	.1600	.0333	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	76,400
Elastic limit per square inch of original section	do...	39,000
Elongation per inch after rupture	inch..	0.1767
Elongation per inch under strain at elastic limit	do...	.001300
Reduction in diameter at point of rupture	do...	.074
Reduction in area after rupture, per centum of original section		24.6
Position of rupture	".05 from middle of stem	
Character of broken surface granular; dull spot at circumference; opened cracks in surface of stem		
Elongation of inch sections	".13, ".26*, ".14	

NEW TUBE No. 44.

No. 2723.

Marks, ^{8 Cn R₄₄ T}
_{B T₄ I}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load
1,250	5,000	.000033	.000033	0.	.....	
2,500	10,000	.000267	.000234	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000733	.000133	0.	.....	
7,500	30,000	.000933	.000200	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001200	.000033			Elastic limit.
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001300	.000067	.....	.....	
10,250	41,000	.001400	.000100	.....	.....	
10,500	42,000	.001633	.000233	.....	.....	
10,750	43,000	.001900	.000267	.....	.....	
11,000	44,000	.002233	.000333	.....	.....	
11,250	45,000	.005933	.003700	.....	.....	
11,500	46,000	.006533	.000600	.....	.....	
12,000	48,000	.009000	.002467	.....	.....	
12,500	50,000	.011267	.002267	.....	.....	
13,000	52,000	.013267	.002000	.....	.....	
13,500	54,000	.016000	.002733	.....	.....	
14,000	56,000	.018233	.002233	.....	.....	
14,500	58,000	.021267	.003034	.....	.....	
15,000	60,000	.024400	.003133			Tensile strength.
15,500	62,000	.027700	.003300	.....	.....	
16,000	64,000	.031333	.003633	.....	.....	
16,500	66,000	.035500	.004167	.....	.....	
17,000	68,000	.0400	.0045	.....	.....	
17,500	70,000	.0467	.0067	.....	.....	
18,000	72,000	.0567	.0100	.....	.....	
18,500	74,000	.0633	.0066			
19,000	76,000	.0733	.0100	.....	.....	
19,500	78,000	.0967	.0234	.....	.....	
20,000	80,000	.1367	.0400	.....	.....	
20,250	81,000					

General summary.

Tensile strength per square inch of original section.....	pounds..	81,000
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.2267
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.174
Reduction in area after rupture, per centum of original section.....		52.2
Position of rupture.....	".65 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".12, ".13, ".43*	

No. 2724.

Marks, $\frac{8}{B} \frac{Cn}{T_5} \frac{R_{44}}{O} T$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001200	.000267	0.	.....	
9,000	36,000	.001233	.000033	.....	.....	
9,250	37,000	.001267	.000034	.....	.....	
9,500	38,000	.001300	.000033	.....	.....	
9,750	39,000	.001300	0.	.....	.....	
10,000	40,000	.001333	.000033			Elastic limit.
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.001667	.000300	.....	.....	
10,750	43,000	.001800	.000133	.....	.....	
11,000	44,000	.001900	.000100	.....	.....	
11,250	45,000	.003067	.001167	.....	.....	
11,500	46,000	.004000	.000933	.....	.....	
12,000	48,000	.007067	.003067	.....	.....	
12,500	50,000	.009367	.002300	.....	.....	
13,000	52,000	.011567	.002200	.....	.....	
13,500	54,000	.013667	.002100	.....	.....	
14,000	56,000	.015667	.002000	.....	.....	
14,500	58,000	.018433	.002766	.....	.....	
15,000	60,000	.020833	.002400	.....	.....	
15,500	62,000	.023733	.002900	.....	.....	
16,000	64,000	.027233	.003500	.....	.....	
16,500	66,000	.030167	.002934	.....	.....	
17,000	68,000	.034500	.004333	.....	.....	
17,500	70,000	.0367	.0022	.....	.....	
18,000	72,000	.0400	.0033	.....	.....	
18,500	74,000	.0500	.0100	.....	.....	
19,000	76,000	.0600	.0100	.....	.....	
19,500	78,000	.0700	.0100	.....	.....	
20,000	80,000	.0900	.0200	.....	.....	
20,500	82,000	.1367	.0467			Tensile strength.
20,750	83,000	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	83,000
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch..	0.2233
Elongation per inch under strain at elastic limit	do...	.001367
Reduction in diameter at point of rupture	do...	.164
Reduction in area after rupture, per centum of original section		49.7
Position of rupture	1" .25 from neck	
Character of broken surface	silky	
Elongation of inch sections	" .10, ".28, ".29*	

No. 2725.

Marks, ^{8 Cn R₁₄ T}
_{B T₆ M}Diameter, ¹¹.564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000600	.000200	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
9,000	36,000	.001233	.000133	.....	.....	
9,250	37,000	.001267	.000034	.....	.....	
9,500	38,000	.001267	0.	.....	.....	
9,750	39,000	.001333	.000066	.....	.....	
10,000	40,000	.001367	.000034	.....	.....	
10,250	41,000	.001400	.000033			Elastic limit.
10,500	42,000	.007233	.005833	.....	.....	
10,750	43,000	.008033	.000800	.....	.....	
11,000	44,000	.009033	.001000	.....	.....	
11,500	46,000	.011133	.002100	.....	.....	
12,000	48,000	.013667	.002534	.....	.....	
12,500	50,000	.016133	.002466	.....	.....	
13,000	52,000	.018667	.002534	.....	.....	
13,500	54,000	.021867	.003200	.....	.....	
14,000	56,000	.025000	.003133	.....	.....	
14,500	58,000	.028400	.003400	.....	.....	
15,000	60,000	.033167	.004767	.....	.....	
15,500	62,000	.036667	.003500	.....	.....	
16,000	64,000	.040000	.003333	.....	.....	
16,500	66,000	.0467	.0067			Tensile strength.
17,000	68,000	.0600	.0133	.....	.....	
17,500	70,000	.0667	.0067	.....	.....	
18,000	72,000	.0800	.0133	.....	.....	
18,500	74,000	.1000	.0200	.....	.....	
19,000	76,000	.1333	.0333	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	76,000
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch..	0.2567
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.174
Reduction in area after rupture, per centum of original section		52.2
Position of rupture	1".23 from neck; oblique	
Character of broken surface	silky	
Elongation of inch sections	".14, ".31*, ".32	

No. 2726.

Marks, ^{8 Cn R44 T}
_{M T4 I}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000533	.000133	0.	.....	
6,250	25,000	.000733	.000200	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
9,000	36,000	.001133	.000066	.....	.....	
9,250	37,000	.001200	.000067	.....	.....	
9,500	38,000	.001233	.000033			Elastic limit.
9,750	39,000	.001267	.000034	.....	.....	
10,000	40,000	.001300	.000033	.....	.....	
10,250	41,000	.001367	.000067	.....	.....	
10,500	42,000	.001433	.000066	.....	.....	
10,750	43,000	.003167	.001734	.....	.....	
11,000	44,000	.005167	.002000	.....	.....	
11,250	45,000	.006167	.001000	.....	.....	
11,500	46,000	.007067	.000900	.....	.....	
12,000	48,000	.009500	.002433	.....	.....	
12,500	50,000	.011733	.002233	.....	.....	
13,000	52,000	.013900	.002167	.....	.....	
13,500	54,000	.016133	.002233	.....	.....	
14,000	56,000	.019000	.002867	.....	.....	
14,500	58,000	.021633	.002633	.....	.....	
15,000	60,000	.024667	.003034			Tensile strength.
15,500	62,000	.028700	.004033	.....	.....	
16,000	64,000	.031367	.002667	.....	.....	
16,500	66,000	.035833	.004466	.....	.....	
17,000	68,000	.038333	.002500	.....	.....	
17,500	70,000	.0433	.004967	.....	.....	
18,000	72,000	.0567	.0134	.....	.....	
18,500	74,000	.0633	.0066	.....	.....	
19,000	76,000	.0733	.0100	.....	.....	
19,500	78,000	.1000	.0267	.....	.....	
20,000	80,000	.1567	.056	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	80,000
Elastic limit per square inch of original section.....	do...	42,000
Elongation per inch after rupture.....	inch..	0.2100
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.104
Reduction in area after rupture, per centum of original section.....		33.5
Position of rupture.....		".80 from neck
Character of broken surface.....		granular; with flaky streak
Elongation of inch sections.....		".29, ".19, ".15

No. 2727.

Marks, $\frac{8}{M} \frac{C_n}{T_5} \frac{R_{44}}{O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	.....	.....	
9,000	36,000	.001100	.000033	.....	.....	
9,250	37,000	.001133	.000033	.....	.....	
9,500	38,000	.001200	.000067	.....	.....	
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001267	.000034	.....	.....	
10,250	41,000	.001333	.000066	.....	.....	
10,500	42,000	.001367	.000034	.....	.....	
10,750	43,000	.001400	.000033			Elastic limit.
11,000	44,000	.001600	.000200	.....	.....	
11,250	45,000	.003033	.001433	.....	.....	
11,500	46,000	.004700	.001667	.....	.....	
12,000	48,000	.007133	.002433	.....	.....	
12,500	50,000	.009333	.002200	.....	.....	
13,000	52,000	.011567	.002634	.....	.....	
13,500	54,000	.013767	.002200	.....	.....	
14,000	56,000	.015933	.002166	.....	.....	
14,500	58,000	.018533	.002600	.....	.....	
15,000	60,000	.021167	.002634	.....	.....	
15,500	62,000	.024433	.003266	.....	.....	
16,000	64,000	.027467	.003034	.....	.....	
16,500	66,000	.031333	.003866	.....	.....	
17,000	68,000	.035233	.003900	.....	.....	
17,500	70,000	.0367	.001467	.....	.....	
18,000	72,000	.0433	.0066	.....	.....	
18,500	74,000	.0533	.0100	.....	.....	
19,000	76,000	.0633	.0100	.....	.....	
19,500	78,000	.0767	.0134	.....	.....	
20,000	80,000	.0967	.0200			Tensile strength.
20,250	81,000	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	81,000
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	0.1433
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.054
Reduction in area after rupture, per centum of original section.....		18.3
Position of rupture.....	1 inch from neck	
Character of broken surface.....	granular; flaky streak	
Elongation of inch sections.....	".11, ".14, ".18*	

No. 2728.

Marks, $\frac{8}{M} \frac{C_n}{T_6} \frac{R_{14}}{M} T$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033			Elastic limit.
9,500	38,000	.001300	.000067	.....	.....	
9,750	39,000	.001367	.000067	.....	.....	
10,000	40,000	.001400	.000033	.....	.....	
10,250	41,000	.001467	.000067	.....	.....	
10,500	42,000	.001667	.000200	.....	.....	
10,750	43,000	.004333	.002666	.....	.....	
11,000	44,000	.005267	.000934	.....	.....	
11,500	46,000	.007533	.002266	.....	.....	
12,000	48,000	.009567	.002034	.....	.....	
12,500	50,000	.012067	.002500	.....	.....	
13,000	52,000	.013900	.001833	.....	.....	
13,500	54,000	.016333	.002433	.....	.....	
14,000	56,000	.018667	.002334	.....	.....	
14,500	58,000	.021567	.002900	.....	.....	
15,000	60,000	.024600	.003033			Tensile strength.
15,500	62,000	.027633	.003033	.....	.....	
16,000	64,000	.031333	.003700	.....	.....	
16,500	66,000	.035400	.004067	.....	.....	
17,000	68,000	.038333	.002933	.....	.....	
17,500	70,000	.0433	.004967	.....	.....	
18,000	72,000	.0533	.0100	.....	.....	
18,500	74,000	.0633	.0100			
19,000	76,000	.0700	.0067	.....	.....	
19,500	78,000	.0933	.0233	.....	.....	
20,000	80,000	.1267	.0334	.....	.....	
20,300	81,200					

General summary.

Tensile strength per square inch of original section	pounds..	81,200
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch..	0.2333
Elongation per inch under strain at elastic limit	do...	.001467
Reduction in diameter at point of rupture	do...	.154
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	1". 28 from neck	
Character of broken surface	silky	
Elongation of inch sections	".25, ".30*, ".15	

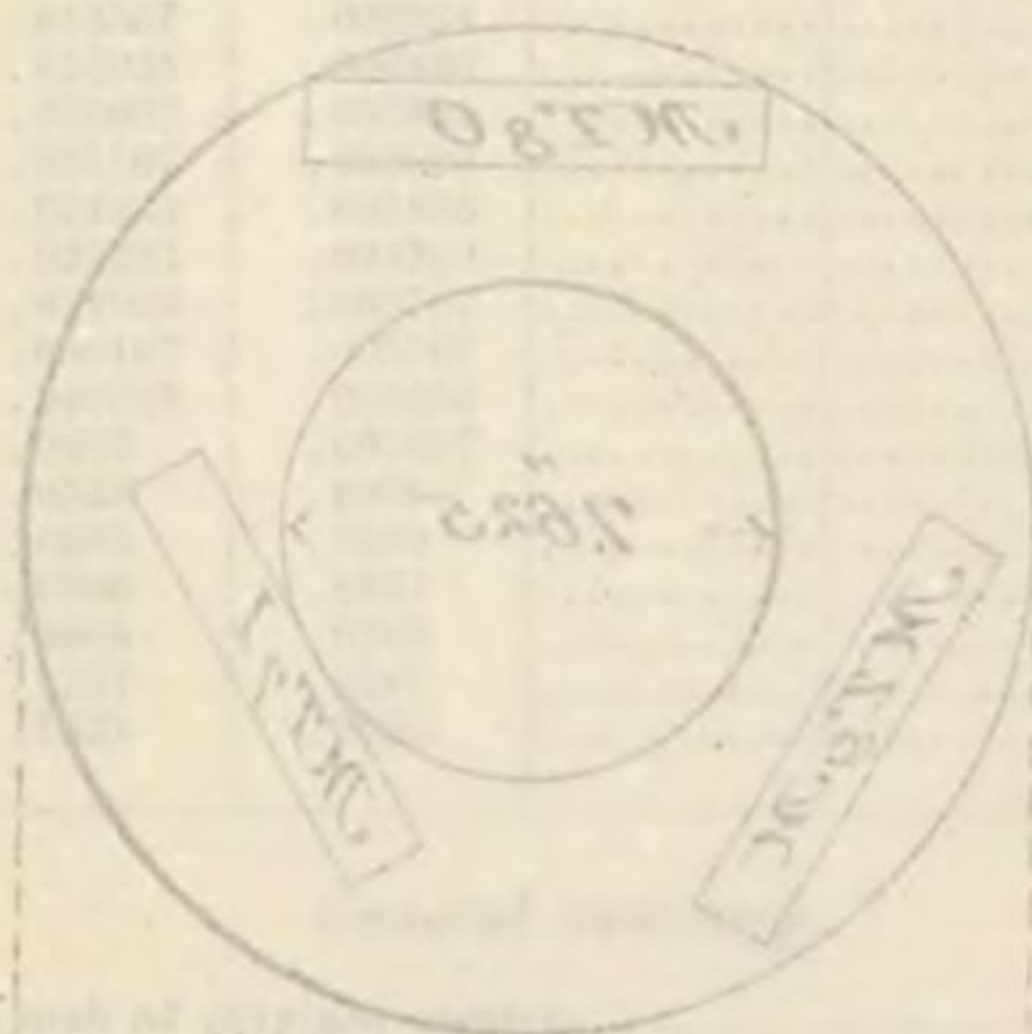
No. 2708.

Marks, 6 Co. B. T.

Diameter, "564.

Sectional area, .25 square inch.

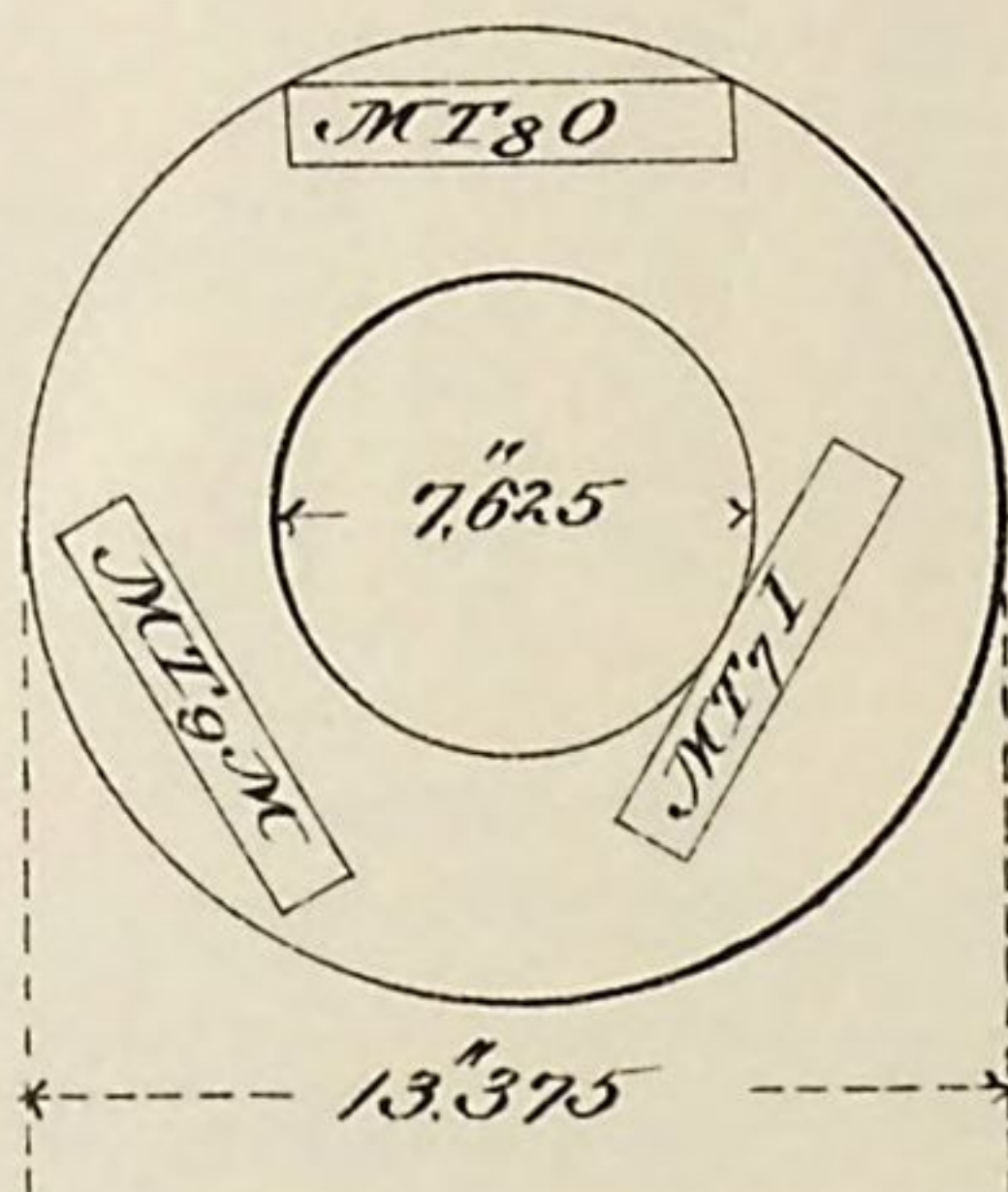
Applied force.		Elongation per inch.	Increase of strength per inch.	Permanent set.	Reduction of area per cent.	Remarks.
Total.	Per square inch.					
100	1,000	0.000	0.000	0.000	0.000	
1,000	10,000	0.000	0.000	0.000	0.000	
2,000	20,000	0.000	0.000	0.000	0.000	
3,000	30,000	0.000	0.000	0.000	0.000	
4,000	40,000	0.000	0.000	0.000	0.000	
5,000	50,000	0.000	0.000	0.000	0.000	
6,000	60,000	0.000	0.000	0.000	0.000	
7,000	70,000	0.000	0.000	0.000	0.000	
8,000	80,000	0.000	0.000	0.000	0.000	
9,000	90,000	0.000	0.000	0.000	0.000	
10,000	100,000	0.000	0.000	0.000	0.000	
11,000	110,000	0.000	0.000	0.000	0.000	
12,000	120,000	0.000	0.000	0.000	0.000	
13,000	130,000	0.000	0.000	0.000	0.000	
14,000	140,000	0.000	0.000	0.000	0.000	
15,000	150,000	0.000	0.000	0.000	0.000	
16,000	160,000	0.000	0.000	0.000	0.000	
17,000	170,000	0.000	0.000	0.000	0.000	
18,000	180,000	0.000	0.000	0.000	0.000	
19,000	190,000	0.000	0.000	0.000	0.000	
20,000	200,000	0.000	0.000	0.000	0.000	
21,000	210,000	0.000	0.000	0.000	0.000	
22,000	220,000	0.000	0.000	0.000	0.000	
23,000	230,000	0.000	0.000	0.000	0.000	
24,000	240,000	0.000	0.000	0.000	0.000	
25,000	250,000	0.000	0.000	0.000	0.000	
26,000	260,000	0.000	0.000	0.000	0.000	
27,000	270,000	0.000	0.000	0.000	0.000	
28,000	280,000	0.000	0.000	0.000	0.000	
29,000	290,000	0.000	0.000	0.000	0.000	
30,000	300,000	0.000	0.000	0.000	0.000	



H Ex 31 40 S

New Tube No. 44 8" converted Rifle

Additional specimens



H Ex 31 49 2

No. 2768.

Marks, ^{8 Cn R₄₄ T}
_{M T₇ I}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000300	.000133	0.	.....	
3,750	15,000	.000500	.000200	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000800	.000133	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001167	.000200	.....	.....	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033	.....	.....	
9,500	38,000	.001267	.000034	.....	.....	
9,750	39,000	.001333	.000036	.....	.....	
10,000	40,000	.001367	.000034	.....	.....	
10,250	41,000	.001400	.000033			Elastic limit.
10,500	42,000	.001500	.000100	.....	.....	
10,750	43,000	.001833	.000333	.....	.....	
11,000	44,000	.004500	.002667	.....	.....	
11,250	45,000	.007000	.002500	.....	.....	
11,500	46,000	.007600	.000600	.....	.....	
11,750	47,000	.008200	.000600	.....	.....	
12,000	48,000	.009367	.001167	.....	.....	
12,250	49,000	.010333	.000966	.....	.....	
12,500	50,000	.011533	.001200	.....	.....	
13,000	52,000	.013567	.002034	.....	.....	
13,500	54,000	.016033	.002466	.....	.....	
14,000	56,000	.018667	.002634	.....	.....	
14,500	58,000	.021167	.002500	.....	.....	
15,000	60,000	.024033	.002866	.....	.....	
15,500	62,000	.027233	.003200	.....	.....	
16,000	64,000	.031000	.003767	.....	.....	
16,500	66,000	.036167	.005167	.....	.....	
17,000	68,000	.040833	.004666	.....	.....	
17,500	70,000	.0467	.005867	.....	.....	
18,000	72,000	.0533	.0066	.....	.....	
18,500	74,000	.0633	.0100	.....	.....	
19,000	76,000	.0700	.0067	.....	.....	
19,500	78,000	.0900	.0200	.....	.....	
20,000	80,000	.1267	.0367			Tensile strength.
20,020	80,080	.1333	.0066	.....	.....	

General summary.

Tensile strength per square inch of original sectionpounds.. 80,080
 Elastic limit per square inch of original sectiondo... 42,000
 Elongation per inch after rupture.....inch.. 0.1567
 Elongation per inch under strain at elastic limitdo... .001500
 Reduction in diameter at point of rupturedo... .064
 Reduction in area after rupture, per centum of original section 21.4
 Position of rupture....."33 from neck
 Character of broken surface.....granular; radiating from a flaky spot at circumference
 Elongation of inch sections....."13, ".13, ".21*

No. 2769.

Marks, $\frac{8 C_n R_{44} T}{M T_8 O}$

Diameter ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000467	.000134	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	.....	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001300	.000067	.....	.....	
10,000	40,000	.001333	.000033	.....	.....	
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.001400	.000033	.....	.....	
10,750	43,000	.001467	.000067	.....	.....	
11,000	44,000	.001567	.000100			Elastic limit.
11,250	45,000	.001767	.000200	.....	.....	
11,500	46,000	.004667	.002900	.....	.....	
11,750	47,000	.006167	.001500	.....	.....	
12,000	48,000	.007000	.000833	.....	.....	
12,250	49,000	.008167	.001167	.....	.....	
12,500	50,000	.009533	.001366	.....	.....	
13,000	52,000	.011333	.001800	.....	.....	
13,500	54,000	.013600	.002267	.....	.....	
14,000	56,000	.016000	.002400	.....	.....	
14,500	58,000	.018667	.002667	.....	.....	
15,000	60,000	.021167	.002500	.....	.....	
15,500	62,000	.024167	.003000	.....	.....	
16,000	64,000	.027167	.003000	.....	.....	
16,500	66,000	.030667	.003500	.....	.....	
17,000	68,000	.034667	.004000	.....	.....	
17,500	70,000	.039000	.004333	.....	.....	
18,000	72,000	.0467	.0077	.....	.....	
18,500	74,000	.0533	.0066	.....	.....	
19,000	76,000	.0600	.0067	.....	.....	
19,500	78,000	.0700	.0100	.....	.....	
20,000	80,000	.0933	.0233			Tensile strength.
20,500	82,000	.1333	.0400	.....	.....	

General summary.

Tensile strength, per square inch of original section.....	pounds..	82.000
Elastic limit per square inch of original section	do...	44,000
Elongation per inch after rupture.	inch..	0.2033
Elongation per inch under strain at elastic limit	do...	.001567
Reduction in diameter at point of rupture	do...	.094
Reduction in area after rupture, per centum of original section		30.6
Position of rupture	".65 from neck; oblique	
Character of broken surface.....	silky	
Elongation of inch sections.....	".13, ".18, ".30*	

No. 2770.

Marks, ^{8 C₁₁ R₄₄ T}
_{M T₉ M}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000200	.000200	0.	.....	
2,500	10,000	.000367	.000167	0.	.....	
3,750	15,000	.000533	.000166	0.	.....	
5,000	20,000	.000700	.000167	0.	.....	
6,250	25,000	.000867	.000167	0.	.....	
7,500	30,000	.001033	.000166	0.	.....	
8,750	35,000	.001200	.000167	.....	.....	
9,000	36,000	.001233	.000033	.....	.....	
9,250	37,000	.001267	.000034	.....	.....	
9,500	38,000	.001333	.000066			Elastic limit.
9,750	39,000	.001367	.000034	.....	.....	
10,000	40,000	.001433	.000066	.....	.....	
10,250	41,000	.001467	.000034	.....	.....	
10,500	42,000	.001533	.000066	.....	.....	
10,750	43,000	.001700	.000167	.....	.....	
11,000	44,000	.005500	.003800	.....	.....	
11,250	45,000	.006067	.000567	.....	.....	
11,500	46,000	.007100	.001033	.....	.....	
11,750	47,000	.008067	.000967	.....	.....	
12,000	48,000	.009167	.001100	.....	.....	
12,250	49,000	.010033	.000866	.....	.....	
12,500	50,000	.011200	.001167	.....	.....	
13,000	52,000	.013500	.002300	.....	.....	
13,500	54,000	.015667	.002167	.....	.....	
14,000	56,000	.018167	.002500			Tensile strength.
14,500	58,000	.021000	.002833	.....	.....	
15,000	60,000	.023500	.002500	.....	.....	
15,500	62,000	.026667	.003167	.....	.....	
16,000	64,000	.029667	.003000	.....	.....	
16,500	66,000	.033333	.003666	.....	.....	
17,000	68,000	.037667	.004334	.....	.....	
17,500	70,000	.0400	.002333	.....	.....	
18,000	72,000	.0467	.0067	.....	.....	
18,500	74,000	.0567	.0100	.....	.....	
19,000	76,000	.0667	.0100			
19,500	78,000	.0800	.0133	.....	.....	
20,000	80,000	.1067	.0267	.....	.....	
20,160	80,640	.1400	.0333	.....	.....	

General summary.

Tensile strength per square inch of original section pounds.. 80,640
 Elastic limit per square inch of original section do.... 42,000
 Elongation per inch after rupture inch.. 0.2167
 Elongation per inch under strain at elastic limit do... .001533
 Reduction in diameter at point of rupture do... .164
 Reduction in area after rupture, per centum of original section 49.7
 Position of rupture 1".35 from neck
 Character of broken surface silky
 Elongation of inch sections ".11, ".30*, ".24

H. Ex. 31—54

No. 2104.

Marks, $\frac{8 T_{45}}{B T_1 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000467	.000134	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.001000	.000200	0.	.....	
8,750	35,000	.001133	.000133	0.	.....	
10,000	40,000	.001367	.000234	.000067	.000067	
10,250	41,000	.001500	.000133			Elastic limit.
10,500	42,000	.004733	.003233	.....	.....	
10,750	43,000	.006767	.002034	.....	.....	
11,000	44,000	.007700	.000933	.....	.....	
11,250	45,000	.009000	.001300	.....	.....	
11,500	46,000	.010133	.001133	.....	.....	
11,750	47,000	.011167	.001034	.....	.....	
12,000	48,000	.012500	.001333	.....	.....	
12,250	49,000	.013667	.001167	.....	.....	
12,500	50,000	.015067	.001400	.....	.....	
12,750	51,000	.016333	.001266	.....	.....	
13,000	52,000	.017833	.001500	.....	.....	
13,250	53,000	.019200	.001367	.....	.....	
13,500	54,000	.020700	.001500	.....	.....	
13,750	55,000	.022333	.001633	.....	.....	
14,000	56,000	.024333	.002000	.....	.....	
14,250	57,000	.025667	.001334	.....	.....	
14,500	58,000	.028067	.002400	.....	.....	
14,750	59,000	.030167	.002100	.....	.....	
15,000	60,000	.032500	.002333	.....	.....	
15,500	62,000	.036900	.004400	.....	.....	
16,000	64,000	.042333	.005433	.....	.....	
16,500	66,000	.048333	.006000	.....	.....	
17,000	68,000	.057667	.009334	.....	.....	
17,500	70,000	.070000	.012333	.....	.....	
18,000	72,000	.0900	.0200	.....	.....	
18,500	74,000	.1300	.0400	.....	.....	
18,510	74,040	.1667	.0367			Tensile strength.

General summary.

Specific gravity	7.8583
Hardness	12.42
Tensile strength per square inch of original section	pounds 74,040
Elastic limit per square inch of original section	do 40,000
Elongation per inch after rupture	inch 0.2700
Elongation per inch under strain at elastic limit	do .001367
Reduction in diameter at point of rupture	do .144
Reduction in area after rupture, per centum of original section	44.6
Position of rupture	".60 from middle of stem
Character of broken surface	silky; cracks opened in surface of stem
Elongation of inch sections	".38*, ".26, ".17

No. 2105.

Marks, $\frac{8}{B} \frac{T_{45}}{T_2 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	-----	
2,500	10,000	.000333	.000166	0.	-----	
3,750	15,000	.000500	.000167	0.	-----	
5,000	20,000	.000667	.000167	0.	-----	
6,250	25,000	.000833	.000166	0.	-----	
7,500	30,000	.001000	.000167	0.	-----	
8,750	35,000	.001200	.000200	0.	-----	
9,000	36,000	.001233	.000033	-----	-----	
9,250	37,000	.001267	.000034	-----	-----	
9,500	38,000	.001300	.000033	-----	-----	
9,750	39,000	.001333	.000033	-----	-----	
10,000	40,000	.001367	.000034	.000067	.000067	Elastic limit.
10,250	41,000	.001400	.000033	-----	-----	
10,500	42,000	.001567	.000167	-----	-----	
10,750	43,000	.001800	.000233	-----	-----	
11,000	44,000	.003000	.001200	-----	-----	
11,250	45,000	.005267	.002267	-----	-----	
11,500	46,000	.007333	.002066	-----	-----	
11,750	47,000	.008467	.001134	-----	-----	
12,000	48,000	.009667	.001200	-----	-----	
12,250	49,000	.010333	.000666	-----	-----	
12,500	50,000	.011333	.001000	-----	-----	
12,750	51,000	.012667	.001334	-----	-----	
13,000	52,000	.013767	.001100	-----	-----	
13,250	53,000	.014900	.001133	-----	-----	
13,500	54,000	.016533	.001633	-----	-----	
13,750	55,000	.018100	.001567	-----	-----	
14,000	56,000	.019500	.001400	-----	-----	
14,250	57,000	.020733	.001233	-----	-----	
14,500	58,000	.022700	.001967	-----	-----	
14,750	59,000	.024000	.001300	-----	-----	
15,000	60,000	.025667	.001667	-----	-----	
15,500	62,000	.030000	.004333	-----	-----	
16,000	64,000	.034667	.004667	-----	-----	
16,500	66,000	.039500	.004833	-----	-----	
17,000	68,000	.045333	.005833	-----	-----	
17,500	70,000	.053000	.007667	-----	-----	
18,000	72,000	.063167	.010167	-----	-----	
18,500	74,000	.078000	.014833	-----	-----	
19,000	76,000	.1133	.0353	-----	-----	
19,120	76,480	.1533	.0400	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	76,480
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch..	0.2433
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.154
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	".10 from middle of stem	
Character of broken surface	silky; cracks opened in surface of stem	
Elongation of inch sections	".15, ".43, ".15	

No. 2106.

Marks, $\frac{8}{B} \frac{T_{45}}{T_3} M$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001200	.000067	.....	.....	
9,250	37,000	.001233	.000033			Elastic limit.
9,500	38,000	.001267	.000034	.....	.....	
9,750	39,000	.001300	.000033	.....	.....	
10,000	40,000	.001700	.000400	.....	.....	
10,250	41,000	.006900	.005200	.....	.....	
10,500	42,000	.008167	.001267	.....	.....	
10,750	43,000	.009500	.001333	.....	.....	
11,000	44,000	.010500	.001000	.....	.....	
11,250	45,000	.012067	.001567	.....	.....	
11,500	46,000	.013033	.000966	.....	.....	
11,750	47,000	.014133	.001100			
12,000	48,000	.015433	.001300	.....	.....	
12,250	49,000	.016833	.001400	.....	.....	
12,500	50,000	.018400	.001567	.....	.....	
12,750	51,000	.019833	.001433	.....	.....	
13,000	52,000	.021367	.001534	.....	.....	
13,250	53,000	.022833	.001466	.....	.....	
13,500	54,000	.024700	.001867	.....	.....	
13,750	55,000	.026333	.001633	.....	.....	
14,000	56,000	.028533	.002200			Tensile strength.
14,250	57,000	.030167	.001634	.....	.....	
14,500	58,000	.032500	.002333	.....	.....	
14,750	59,000	.034733	.002233	.....	.....	
15,000	60,000	.037400	.002667	.....	.....	
15,500	62,000	.043667	.006267	.....	.....	
16,000	64,000	.050667	.007000	.....	.....	
16,500	66,000	.058833	.008166	.....	.....	
17,000	68,000	.070000	.011167	.....	.....	
17,500	70,000	.0933	.0233	.....	.....	
18,000	72,000	.1300	.0367	.....	.....	
18,090	72,360	.1700	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	72,360
Elastic limit per square inch of original section	do...	39,000
Elongation per inch after rupture	inch..	0.2667
Elongation per inch under strain at elastic limit	do...	.001300
Reduction in diameter at point of rupture	do...	.164
Reduction in area after rupture, per centum of original section	do...	49.7
Position of rupture	$\frac{1}{2}$ inch from middle of stem	
Character of broken surface	silky; cracks opened in surface of stem	
Elongation of inch sections	".22, ".42*, ".16	

No. 2107.

Marks, $\frac{8 T_{45}}{M T_1 I}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000500	.000200	0.	.....	
5,000	20,000	.000700	.000200	.000033	.000033	
6,250	25,000	.000833	.000133	.000067	.000034	
7,500	30,000	.001033	.000200	.000067	0.	
8,750	35,000	.001133	.000100	.000067	0.	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033			Elastic limit.
9,750	39,000	.001300	.000067	.....	.....	
10,000	40,000	.001333	.000033	.000067	0.	
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.001400	.000033	.....	.....	
10,750	43,000	.001467	.000067	.....	.....	
11,000	44,000	.001700	.000233	.....	.....	
11,250	45,000	.004100	.002400	.....	.....	
11,500	46,000	.006667	.002567	.....	.....	
11,750	47,000	.008000	.001333			Tensile strength.
12,000	48,000	.009067	.001067	.....	.....	
12,250	49,000	.009733	.000666	.....	.....	
12,500	50,000	.010800	.001067	.....	.....	
12,750	51,000	.011800	.001000	.....	.....	
13,000	52,000	.013133	.001333	.....	.....	
13,250	53,000	.014267	.001134	.....	.....	
13,500	54,000	.015733	.001466	.....	.....	
13,750	55,000	.016700	.000967	.....	.....	
14,000	56,000	.018000	.001300	.....	.....	
14,250	57,000	.019500	.001500			Tensile strength.
14,500	58,000	.020400	.000900	.....	.....	
14,750	59,000	.021767	.001367	.....	.....	
15,000	60,000	.023733	.001966	.....	.....	
15,500	62,000	.027067	.003334	.....	.....	
16,000	64,000	.030667	.003600	.....	.....	
16,500	66,000	.034700	.004033	.....	.....	
17,000	68,000	.039333	.004633	.....	.....	
17,500	70,000	.045000	.005667	.....	.....	
18,000	72,000	.051667	.006667	.....	.....	
18,500	74,000	.059000	.007333			Tensile strength.
19,000	76,000	.0700	.0110	.....	.....	
19,500	78,000	.0933	.0233	.....	.....	
20,000	80,000	.1300	.0367	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	80,000
Elastic limit per square inch of original section	do...	43,000
Elongation per inch after rupture	inch..	0.2233
Elongation per inch under strain at elastic limit	do...	.001467
Reduction in diameter at point of rupture	do...	.135
Reduction in area after rupture, per centum of original section		41.9
Position of rupture	at middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".18, ".36, * ".13	

No. 2108.

Marks, $\frac{8 T_{45}}{M T_{20}}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000433	.000100	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001200	.000033	.....	.....	
9,750	39,000	.001333	.000133	.....	.....	
10,000	40,000	.001367	.000034	.000100	.000100	Elastic limit.
10,250	41,000	.004267	.002900	.....	.....	
10,500	42,000	.006500	.002233	.....	.....	
10,750	43,000	.008167	.001667	.....	.....	
11,000	44,000	.009667	.001500	.....	.....	
11,250	45,000	.010500	.000833	.....	.....	
11,500	46,000	.011500	.001000	.....	.....	
11,750	47,000	.012667	.001167	.....	.....	
12,000	48,000	.013767	.001100	.....	.....	
12,250	49,000	.014833	.001066	.....	.....	
12,500	50,000	.016333	.001500	.....	.....	
12,750	51,000	.017500	.001167	.....	.....	
13,000	52,000	.019000	.001500	.....	.....	
13,250	53,000	.020000	.001000	.....	.....	
13,500	54,000	.021500	.001500	.....	.....	
13,750	55,000	.022833	.001333	.....	.....	
14,000	56,000	.024667	.001834	.....	.....	
14,250	57,000	.026333	.001666	.....	.....	
14,500	58,000	.028200	.001867	.....	.....	
14,750	59,000	.029833	.001633	.....	.....	
15,000	60,000	.031867	.002034	.....	.....	
15,500	62,000	.036000	.004133	.....	.....	
16,000	64,000	.041667	.005667	.....	.....	
16,500	66,000	.047333	.005666	.....	.....	
17,000	68,000	.054167	.006834	.....	.....	
17,500	70,000	.063333	.009166	.....	.....	
18,000	72,000	.0767	.013367	.....	.....	
18,500	74,000	.0967	.0200	.....	.....	
18,970	75,880	.1533	.0566			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	75,880
Elastic limit per square inch of original section	do.,	40,000
Elongation per inch after rupture	inch..	0.2233
Elongation per inch under strain at elastic limit	do...	.001367
Reduction in diameter at point of rupture	do...	.164
Reduction in area after rupture, per centum of original section		49.7
Position of rupture	".90 from neck	
Character of broken surface	silky	
Elongation of inch sections	".39*, ".16, ".12	

No. 2109.

Marks, $\frac{8 T_{45}}{M T_3 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001133	.000200	.000067	.000067	Elastic limit.
9,000	36,000	.001367	.000234	.....	.....	
9,250	37,000	.004800	.003433	.....	.....	
9,500	38,000	.007067	.002267	.....	.....	
9,750	39,000	.008100	.001033	.....	.....	
10,000	40,000	.009000	.000900	.....	.....	
10,250	41,000	.010233	.001233	.....	.....	
10,500	42,000	.011000	.000767	.....	.....	
10,750	43,000	.012267	.001267	.....	.....	
11,000	44,000	.013500	.001233	.....	.....	
11,250	45,000	.014667	.001167	.....	.....	
11,500	46,000	.015667	.001000	.....	.....	
11,750	47,000	.017167	.001500	.....	.....	
12,000	48,000	.018333	.001166	.....	.....	
12,250	49,000	.019767	.001434	.....	.....	
12,500	50,000	.021000	.001233	.....	.....	
12,750	51,000	.022667	.001667	.....	.....	
13,000	52,000	.024033	.001366	.....	.....	
13,250	53,000	.026000	.001967	.....	.....	
13,500	54,000	.027333	.001333	.....	.....	
13,750	55,000	.029500	.002167	.....	.....	
14,000	56,000	.031167	.001667	.....	.....	
14,250	57,000	.033700	.002533	.....	.....	
14,500	58,000	.035500	.001800	.....	.....	
14,750	59,000	.038400	.002900	.....	.....	
15,000	60,000	.040700	.002300	.....	.....	
15,250	61,000	.043067	.002367	.....	.....	
15,500	62,000	.050000	.006933	.....	.....	
16,000	64,000	.057333	.007333	.....	.....	
16,500	66,000	.0667	.009367	.....	.....	
17,000	68,000	.0800	.0133	.....	.....	
17,500	70,000	.1000	.0200	.....	.....	
18,000	72,000	.1267	.0267	.....	.....	
18,210	72,840	.1800	.0533	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	72,840
Elastic limit per square inch of original section	do...	35,000
Elongation per inch after rupture	inch..	0.2467
Elongation per inch under strain at elastic limit	do...	.001133
Reduction in diameter at point of rupture	do...	.104
Reduction in area after rupture, per centum of original section		33.5
Position of rupture	$\frac{3}{4}$ inch from middle of stem	
Character of broken surface	silky; opened cracks in surface of stem	
Elongation of inch sections	".34*, ".22, ".18	

No. 2110.

Marks, $\frac{8}{B} \frac{T_{46}}{T_{11}}$
Diameter, $\frac{1}{2}$.564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033	.....	.....	
9,750	39,000	.001267	.000034			Elastic limit.
10,000	40,000	.001333	.000066	.000033	.000033	
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.001400	.000033	.....	.....	
10,750	43,000	.001400	0.	.....	.....	
11,000	44,000	.001433	.000033	.....	.....	
11,250	45,000	.001400	.002567	.....	.....	
11,500	46,000	.007333	.003333	.....	.....	
11,750	47,000	.009167	.001834	.....	.....	
12,000	48,000	.010267	.001100	.....	.....	
12,250	49,000	.011000	.000733	.....	.....	
12,500	50,000	.012367	.001367	.....	.....	
12,750	51,000	.013667	.001300	.....	.....	
13,000	52,000	.015000	.001333	.....	.....	
13,250	53,000	.016400	.001400	.....	.....	
13,500	54,000	.017833	.001433	.....	.....	
13,750	55,000	.019333	.001500	.....	.....	
14,000	56,000	.020833	.001500	.....	.....	
14,250	57,000	.022167	.001334	.....	.....	
14,500	58,000	.024333	.002166	.....	.....	
14,750	59,000	.026033	.001700	.....	.....	
15,000	60,000	.028200	.002167			Tensile strength.
15,500	62,000	.032333	.004133	.....	.....	
16,000	64,000	.037167	.004834	.....	.....	
16,500	66,000	.044000	.006833	.....	.....	
17,000	68,000	.050000	.006000	.....	.....	
17,500	70,000	.058833	.008833	.....	.....	
18,000	72,000	.0700	.011167	.....	.....	
18,500	74,000	.0967	.0267	.....	.....	
18,920	75,680	.1600	.0633	.....	.....	

General summary.

Specific gravity.....	7.8632
Hardness.....	12.14
Tensile strength per square inch of original section.....pounds..	75,680
Elastic limit per square inch of original section.....do.....	44,000
Elongation per inch after rupture.....inch..	0.2467
Elongation per inch under strain at elastic limit.....do.....	.001433
Reduction in diameter at point of rupture.....do.....	.194
Reduction in area after rupture, per centum of original section.....	57.0
Position of rupture.....	$\frac{3}{4}$ inch from neck
Character of broken surface.....	silky
Elongation of inch sections.....	".44", ".16", ".14"

No. 2111.

Marks, ⁸ T₄₆
B T₂ O

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000300	.000133	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000567	.000100	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
9,000	36,000	.001133	.000066	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001200	.000033	.....	.....	
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001367	.000134	.000067	.000067	Elastic limit.
10,250	41,000	.005333	.003966	.....	.....	
10,500	42,000	.007333	.002000	.....	.....	
10,750	43,000	.008000	.000667	.....	.....	
11,000	44,000	.009000	.001000	.....	.....	
11,250	45,000	.010000	.001000	.....	.....	
11,500	46,000	.011233	.001233	.....	.....	
11,750	47,000	.012833	.001600	.....	.....	
12,000	48,000	.013733	.000900	.....	.....	
12,250	49,000	.015000	.001267	.....	.....	
12,500	50,000	.016167	.001167	.....	.....	
12,750	51,000	.017867	.001700	.....	.....	
13,000	52,000	.018667	.000800	.....	.....	
13,250	53,000	.020233	.001566	.....	.....	
13,500	54,000	.021667	.001434	.....	.....	
13,750	55,000	.023000	.001333	.....	.....	
14,000	56,000	.024667	.001667	.....	.....	
14,250	57,000	.027333	.002666	.....	.....	
14,500	58,000	.029500	.002167	.....	.....	
14,750	59,000	.031167	.001667	.....	.....	
15,000	60,000	.033167	.002000	.....	.....	
15,500	62,000	.037667	.004500	.....	.....	
16,000	64,000	.043167	.005500	.....	.....	
16,500	66,000	.050000	.006833	.....	.....	
17,000	68,000	.059000	.009000	.....	.....	
17,500	70,000	.070667	.011667	.....	.....	
18,000	72,000	.0967	.026033	.....	.....	
18,500	74,000	.1200	.0333	.....	.....	
18,690	74,760	.1633	.0333	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	74,760
Elastic limit per square inch of original section.....	do. .	40,000
Elongation per inch after rupture.....	inch..	0.2567
Elongation per inch under strain at elastic limit.....	do. .	.001367
Reduction in diameter at point of rupture.....	do. .	.174
Reduction in area after rupture, per centum of original section.....		52.2
Position of rupture.....	".45 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".21, ".42*, ".14	

No. 2112.

Marks, ⁸T₄₆
B T₃ M
Diameter, ".564.
Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033	.....	.....	
9,500	38,000	.001267	.000034	.....	.....	
9,750	39,000	.001300	.000033			Elastic limit.
10,000	40,000	{	.001367	.000067	.....	
			.004067	.002700	.....	
10,250	41,000		.007067	.003000	.....	
10,500	42,000		.008333	.001266	.....	
10,750	43,000		.009933	.001600	.....	
11,000	44,000		.010433	.001500	.....	
11,250	45,000		.011367	.000934	.....	
11,500	46,000		.012800	.001433	.....	
11,750	47,000		.014000	.001200	.....	
12,000	48,000		.015667	.001667	.....	
12,250	49,000		.016733	.001066	.....	
12,500	50,000		.018267	.001534		Tensile strength.
12,750	51,000		.019667	.001400	.....	
13,000	52,000		.021167	.001500	.....	
13,250	53,000		.022667	.001500	.....	
13,500	54,000		.024367	.001700	.....	
13,750	55,000		.026333	.001966	.....	
14,000	56,000		.028333	.002000	.....	
14,250	57,000		.030233	.001900	.....	
14,500	58,000		.032500	.002267	.....	
14,750	59,000		.034733	.002233	.....	
15,000	60,000		.037067	.002334	.....	
15,500	62,000		.042667	.005600	.....	
16,000	64,000		.049667	.007000	.....	
16,500	66,000		.057833	.008166	.....	
17,000	68,000		.0700	.012167	.....	
17,500	70,000		.0900	.1200	.....	
18,000	72,000		.1133	.1233	.....	
18,260	73,040		.1667	.1534	.....	

General summary.

Tensile strength per square inch of original section	pounds..	73,040
Elastic limit per square inch of original section	do...	39,000
Elongation per inch after rupture	inch..	0.2700
Elongation per inch under strain at elastic limit	do...	.001300
Reduction in diameter at point of rupture	do...	.194
Reduction in area after rupture, per centum of original section		57.0
Position of rupture	1 inch from neck	
Character of broken surface	silky	
Elongation of inch sections	".45*, ".21, ".15	

No. 2113.

Marks, $\frac{8}{M} \frac{T_{46}}{T_{11}}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001033	.000133	0.	.....	
9,000	36,000	.001067	.000034	.....	.....	
9,250	37,000	.001067	0.	.....	.....	
9,500	38,000	.001100	.000033	.....	.....	
9,750	39,000	.001133	.000033	.....	.....	
10,000	40,000	.001200	.000067	0.	.....	
10,250	41,000	.001233	.000033	.....	.....	
10,500	42,000	.001267	.000034	.....	.....	
10,750	43,000	.001300	.000033	.....	.....	
11,000	44,000	.001367	.000067	.....	.....	
11,250	45,000	.001433	.000066			Elastic limit.
11,500	46,000	.002033	.000600	.....	.....	
11,750	47,000	.003433	.001400	.....	.....	
12,000	48,000	.004833	.001400	.....	.....	
12,250	49,000	.005833	.001000	.....	.....	
12,500	50,000	.007100	.001267	.....	.....	
12,750	51,000	.008167	.001067	.....	.....	
13,000	52,000	.009367	.001200	.....	.....	
13,250	53,000	.010133	.000766	.....	.....	
13,500	54,000	.011200	.001067	.....	.....	
13,750	55,000	.012233	.001033	.....	.....	
14,000	56,000	.013567	.001334	.....	.....	
14,250	57,000	.014933	.001366	.....	.....	
14,500	58,000	.016333	.001400	.....	.....	
14,750	59,000	.017333	.001000	.....	.....	
15,000	60,000	.018700	.001367	.....	.....	
15,500	62,000	.021033	.002333	.....	.....	
16,000	64,000	.024000	.002967	.....	.....	
16,500	66,000	.027333	.003333	.....	.....	
17,000	68,000	.030933	.003600	.....	.....	
17,500	70,000	.035167	.004234	.....	.....	
18,000	72,000	.039000	.003833	.....	.....	
18,500	74,000	.044833	.005833	.....	.....	
19,000	76,000	.051667	.006834	.....	.....	
19,500	78,000	.060000	.008333	.....	.....	
20,000	80,000	.072500	.012500	.....	.....	
20,500	82,000	.1000	.0275			Tensile strength.
20,710	82,840	.1433	.0433	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	82,840
Elastic limit per square inch of original section	do...	45,000
Elongation per inch after rupture	inch..	0.1967
Elongation per inch under strain at elastic limit	do...	.001433
Reduction in diameter at point of rupture	do...	.115
Reduction in area after rupture, per centum of original section		36.4
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	granular; dull spot at circumference	
Elongation of inch sections	".35*, ".13, ".11	

No. 2114.

Marks, $\frac{8 T_{46}}{M T_{20}}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	-----	
2,500	10,000	.000333	.000166	0.	-----	
3,750	15,000	.000500	.000167	0.	-----	
5,000	20,000	.000667	.000167	0.	-----	
6,250	25,000	.000833	.000166	0.	-----	
7,500	30,000	.001000	.000167	0.	-----	
8,750	35,000	.001133	.000133	0.	-----	
10,000	40,000	.001333	.000200	.000033	.000033	
10,250	41,000	.001367	.000034	-----	-----	Elastic limit.
10,500	42,000	.001400	.000033	-----	-----	
10,750	43,000	.001467	.000067	-----	-----	
11,000	44,000	.002833	.001366	-----	-----	
11,250	45,000	.004500	.000667	-----	-----	
11,500	46,000	.006000	.001500	-----	-----	
11,750	47,000	.007233	.001233	-----	-----	
12,000	48,000	.008200	.001967	-----	-----	
12,250	49,000	.008867	.001667	-----	-----	
12,500	50,000	.010000	.001133	-----	-----	
12,750	51,000	.011333	.001333	-----	-----	
13,000	52,000	.012500	.001167	-----	-----	
13,250	53,000	.013433	.000933	-----	-----	
13,500	54,000	.014700	.001267	-----	-----	
13,750	55,000	.015767	.001067	-----	-----	
14,000	56,000	.017167	.001400	-----	-----	
14,250	57,000	.018300	.001133	-----	-----	
14,500	58,000	.019500	.001200	-----	-----	
14,750	59,000	.021133	.001633	-----	-----	
15,000	60,000	.022833	.001700	-----	-----	Tensile strength.
15,500	62,000	.025500	.002667	-----	-----	
16,000	64,000	.028767	.003267	-----	-----	
16,500	66,000	.032833	.004066	-----	-----	
17,000	68,000	.036867	.004034	-----	-----	
17,500	70,000	.041833	.004966	-----	-----	
18,000	72,000	.048167	.006334	-----	-----	
18,500	74,000	.059333	.011166	-----	-----	
19,000	76,000	.065000	.005667	-----	-----	
19,500	78,000	.078000	.013000	-----	-----	
20,000	80,000	.1000	.0220	-----	-----	
20,300	81,200	.1400	.0400	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	81,200
Elastic limit per square inch of original section.....	do....	43,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do....	.001467
Reduction in diameter at point of rupture.....	do....	.074
Reduction in area after rupture, per centum of original section.....		24.6
Position of rupture.....	".45 from middle of stem	
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections.....	".14, ".25*, ".21	

No. 2115.

Marks, $\frac{8}{T_{46}}$ $\frac{M}{T_3 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000067	.000067	— .000033	— .000033	
2,500	10,000	.000200	.000133	— .000033	0.	
3,750	15,000	.000367	.000167	— .000033	0.	
5,000	20,000	.000533	.000166	— .000033	0.	
6,250	25,000	.000700	.000167	— .000033	0.	
7,500	30,000	.000867	.000167	— .000033	0.	
8,750	35,000	.001033	.000166	— .000033	0.	
10,000	40,000	.001200	.000167	— .000000	0.000033	
10,250	41,000	.001867	.000667			Elastic limit.
10,500	42,000	.003267	.001400	.....	.....	
10,750	43,000	.005133	.001866	.....	.....	
11,000	44,000	.007100	.001967	.....	.....	
11,250	45,000	.008000	.000900	.....	.....	
11,500	46,000	.008933	.000933	.....	.....	
11,750	47,000	.009833	.000900	.....	.....	
12,000	48,000	.010700	.000867	.....	.....	
12,250	49,000	.011800	.001100	.....	.....	
12,500	50,000	.013467	.001667	.....	.....	
12,750	51,000	.014033	.000566	.....	.....	
13,000	52,000	.015100	.001067	.....	.....	
13,250	53,000	.016533	.001433	.....	.....	
13,500	54,000	.017667	.001134	.....	.....	
13,750	55,000	.019000	.001333	.....	.....	
14,000	56,000	.020400	.001400	.....	.....	
14,250	57,000	.021767	.001367	.....	.....	
14,500	58,000	.023500	.001733	.....	.....	
14,750	59,000	.024833	.001333	.....	.....	
15,000	60,000	.026667	.001834	.....	.....	
15,500	62,000	.030233	.003566	.....	.....	
16,000	64,000	.034033	.003800	.....	.....	
16,500	66,000	.038467	.004434	.....	.....	
17,000	68,000	.043733	.005266	.....	.....	
17,500	70,000	.050000	.006267	.....	.....	
18,000	72,000	.058333	.008333	.....	.....	
18,500	74,000	.068333	.010000	.....	.....	
19,000	76,000	.0933	.024967	.....	.....	
19,500	78,000	.1233	.0300	.....	.....	
19,670	78,680	.1667	.0434			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	78,680
Elastic limit per square inch of original section.....	do...	40,000
Elongation per inch after rupture.....	inch..	0.2567
Elongation per inch under strain at elastic limit.....	do...	.001209
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....	1".05 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".38*, ".20, ".19	

No. 2135.

Mark, $\frac{1}{2}$ in.Diameter, $\frac{1}{2}$ in.

Sectional area, 25 square inch.

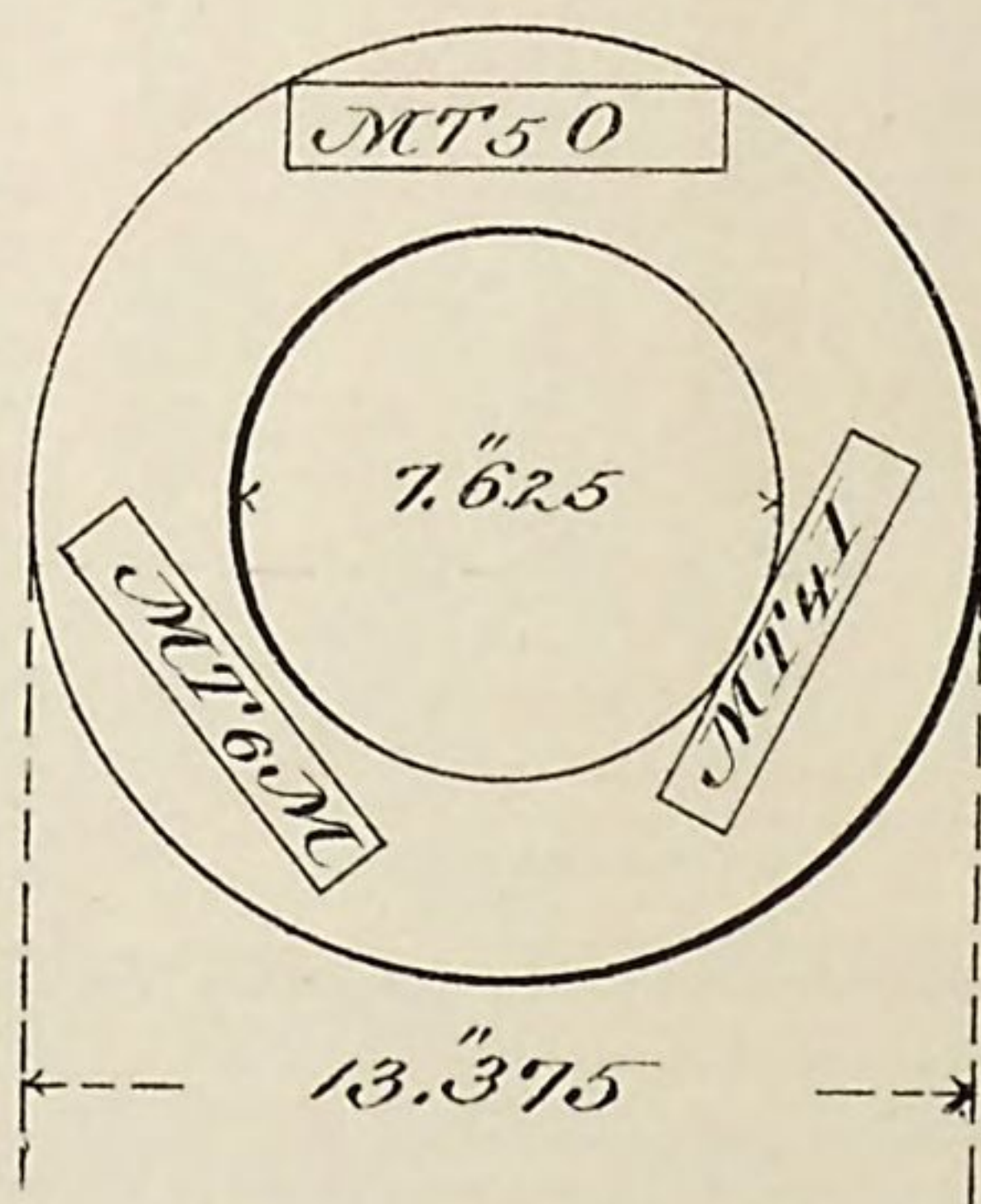
Tube No. 16 8" converted Rifle					
Length	Weight	Length	Weight	Length	Weight
100	1.00	100	1.00	100	1.00
200	2.00	200	2.00	200	2.00
300	3.00	300	3.00	300	3.00
400	4.00	400	4.00	400	4.00
500	5.00	500	5.00	500	5.00
600	6.00	600	6.00	600	6.00
700	7.00	700	7.00	700	7.00
800	8.00	800	8.00	800	8.00
900	9.00	900	9.00	900	9.00
1000	10.00	1000	10.00	1000	10.00
1100	11.00	1100	11.00	1100	11.00
1200	12.00	1200	12.00	1200	12.00
1300	13.00	1300	13.00	1300	13.00
1400	14.00	1400	14.00	1400	14.00
1500	15.00	1500	15.00	1500	15.00
1600	16.00	1600	16.00	1600	16.00
1700	17.00	1700	17.00	1700	17.00
1800	18.00	1800	18.00	1800	18.00
1900	19.00	1900	19.00	1900	19.00
2000	20.00	2000	20.00	2000	20.00
2100	21.00	2100	21.00	2100	21.00
2200	22.00	2200	22.00	2200	22.00
2300	23.00	2300	23.00	2300	23.00
2400	24.00	2400	24.00	2400	24.00
2500	25.00	2500	25.00	2500	25.00
2600	26.00	2600	26.00	2600	26.00
2700	27.00	2700	27.00	2700	27.00
2800	28.00	2800	28.00	2800	28.00
2900	29.00	2900	29.00	2900	29.00
3000	30.00	3000	30.00	3000	30.00
3100	31.00	3100	31.00	3100	31.00
3200	32.00	3200	32.00	3200	32.00
3300	33.00	3300	33.00	3300	33.00
3400	34.00	3400	34.00	3400	34.00
3500	35.00	3500	35.00	3500	35.00
3600	36.00	3600	36.00	3600	36.00
3700	37.00	3700	37.00	3700	37.00
3800	38.00	3800	38.00	3800	38.00
3900	39.00	3900	39.00	3900	39.00
4000	40.00	4000	40.00	4000	40.00
4100	41.00	4100	41.00	4100	41.00
4200	42.00	4200	42.00	4200	42.00
4300	43.00	4300	43.00	4300	43.00
4400	44.00	4400	44.00	4400	44.00
4500	45.00	4500	45.00	4500	45.00
4600	46.00	4600	46.00	4600	46.00
4700	47.00	4700	47.00	4700	47.00
4800	48.00	4800	48.00	4800	48.00
4900	49.00	4900	49.00	4900	49.00
5000	50.00	5000	50.00	5000	50.00



H. E. 31 49 5

Tube No. 46 8"converted Rifle

Additional specimens



H Ex 3/ 49 2

No. 2356.

Marks, ^{8 T₄₆}_{M T₄ I}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000633	.000200	0.	.....	
6,250	25,000	.000767	.000134	0.	.....	
7,500	30,000	.000967	.000200	.000033	.000033	
8,750	35,000	.001133	.000166	.000033	0.	
10,000	40,000	.001333	.000200	.000067	.000034	
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.001400	.000033			Elastic limit.
10,750	43,000	.001433	.000033	.....	.....	
11,000	44,000	.001567	.000134	.....	.....	
11,250	45,000	.002500	.000933	.....	.....	
11,500	46,000	.004100	.001600	.....	.....	
11,750	47,000	.006000	.001900	.....	.....	
12,000	48,000	.007367	.001367	.....	.....	
12,250	49,000	.008167	.000800	.....	.....	
12,500	50,000	.009500	.001333	.....	.....	
13,000	52,000	.011667	.002167	.....	.....	
13,500	54,000	.014000	.002333	.....	.....	
14,000	56,000	.016667	.002667	.....	.....	
14,500	58,000	.019333	.002666	.....	.....	
15,000	60,000	.022167	.002834	.....	.....	
15,500	62,000	.025067	.002900	.....	.....	
16,000	64,000	.028600	.003533			Tensile strength.
16,500	66,000	.032333	.003733	.....	.....	
17,000	68,000	.036667	.004334	.....	.....	
17,500	70,000	.042167	.005500	.....	.....	
18,000	72,000	.049333	.007166	.....	.....	
18,500	74,000	.056667	.007334	.....	.....	
19,000	76,000	.070000	.013333			
19,500	78,000	.083333	.013333	.....	.....	
20,000	80,000	.1100	.026667	.....	.....	
20,200	80,800	.1600	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	80,800
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	0.2567
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.174
Reduction in area after rupture, per centum of original section		52.2
Position of rupture	1".40 from neck	
Character of broken surface	silky	
Elongation of inch sections	".25, ".36*, ".16	

No. 2357.

Marks, $\frac{8}{M} \frac{T_{46}}{T_5 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000433	.000200	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
10,000	40,000	.001233	.000133	0.	.....	
10,250	41,000	.001300	.000067			Elastic limit.
10,500	42,000	.001333	.000033	.....	.....	
10,750	43,000	.001500	.000167	.....	.....	
11,000	44,000	.004667	.003167	.....	.....	
11,250	45,000	.005467	.000800	.....	.....	
11,500	46,000	.006667	.001200	.....	.....	
11,750	47,000	.007700	.001033	.....	.....	
12,000	48,000	.008700	.001000	.....	.....	
12,250	49,000	.009667	.000967	.....	.....	
12,500	50,000	.010667	.001000	.....	.....	
13,000	52,000	.012667	.002000	.....	.....	
13,500	54,000	.014967	.002300	.....	.....	
14,000	56,000	.017533	.002566	.....	.....	
14,500	58,000	.020167	.002634	.....	.....	
15,000	60,000	.023167	.003000	.....	.....	
15,500	62,000	.026000	.002833			Tensile strength.
16,000	64,000	.029333	.003333	.....	.....	
16,500	66,000	.033167	.003834	.....	.....	
17,000	68,000	.037167	.004000	.....	.....	
17,500	70,000	.042267	.005100	.....	.....	
18,000	72,000	.048333	.006066	.....	.....	
18,500	74,000	.054867	.006534	.....	.....	
19,000	76,000	.063333	.008466			
19,500	78,000	.0767	.013367	.....	.....	
20,000	80,000	.1000	.0233	.....	.....	
20,400	81,600	.1607	.0667	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	81,600
Elastic limit per square inch of original section.....	do...	42,000
Elongation per inch after rupture.....	inch..	0.1900
Elongation per inch under strain at elastic limit.....	do...	.001333
Reduction in diameter at point of rupture.....	do...	.084
Reduction in area after rupture, per centum of original section.....		27.6
Position of rupture.....		1 ".4 from neck
Character of broken surface.....	granular; dull spot at circumference	
Elongation of inch sections.....		".13, ".26*, ".18

No. 2358.

Marks, $\frac{8 T_{46}}{M T_6 M}$
Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
10,000	40,000	.001333	.000166	0.	.....	
10,250	41,000	.001367	.000034	.....	.....	Elastic limit.
10,500	42,000	.001500	.000133	.....	.....	
10,750	43,000	.002233	.000733	.....	.....	
11,000	44,000	.003667	.001434	.....	.....	
11,250	45,000	.005600	.001933	.....	.....	
11,500	46,000	.007000	.001400	.....	.....	
11,750	47,000	.008000	.001000	.....	.....	
12,000	48,000	.008667	.000667	.....	.....	
12,250	49,000	.009667	.001000	.....	.....	
12,500	50,000	.010433	.000766	.....	.....	
13,000	52,000	.012833	.002400	.....	.....	
13,500	54,000	.015167	.002334	.....	.....	
14,000	56,000	.017833	.002666	.....	.....	
14,500	58,000	.020400	.002567	.....	.....	
15,000	60,000	.023067	.002667	.....	.....	
15,500	62,000	.025833	.002766	.....	.....	
16,000	64,000	.029167	.003334	.....	.....	
16,500	66,000	.033000	.003833	.....	.....	
17,000	68,000	.037500	.004500	.....	.....	
17,500	70,000	.042667	.005167	.....	.....	
18,000	72,000	.048000	.005333	.....	.....	
18,500	74,000	.055833	.007833	.....	.....	
19,000	76,000	.065000	.009167	.....	.....	
19,500	78,000	.0800	.0150	.....	.....	
20,000	80,000	.1067	.0267	.....	.....	
20,260	81,040	.1533	.0466	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	81,040
Elastic limit per square inch of original section.....	do...	41,000
Elongation per inch after rupture.....	inch..	0.1967
Elongation per inch under strain at elastic limit.....	do...	.001367
Reduction in diameter at point of rupture.....	do...	.074
Reduction in area after rupture, per centum of original section.....		24.6
Position of rupture.....	1".23 from neck	
Character of broken surface, granular; flaky line of dull-colored metal; opened cracks in surface of stem.		
Elongation of inch sections.....	".22, ".22*, ".15	

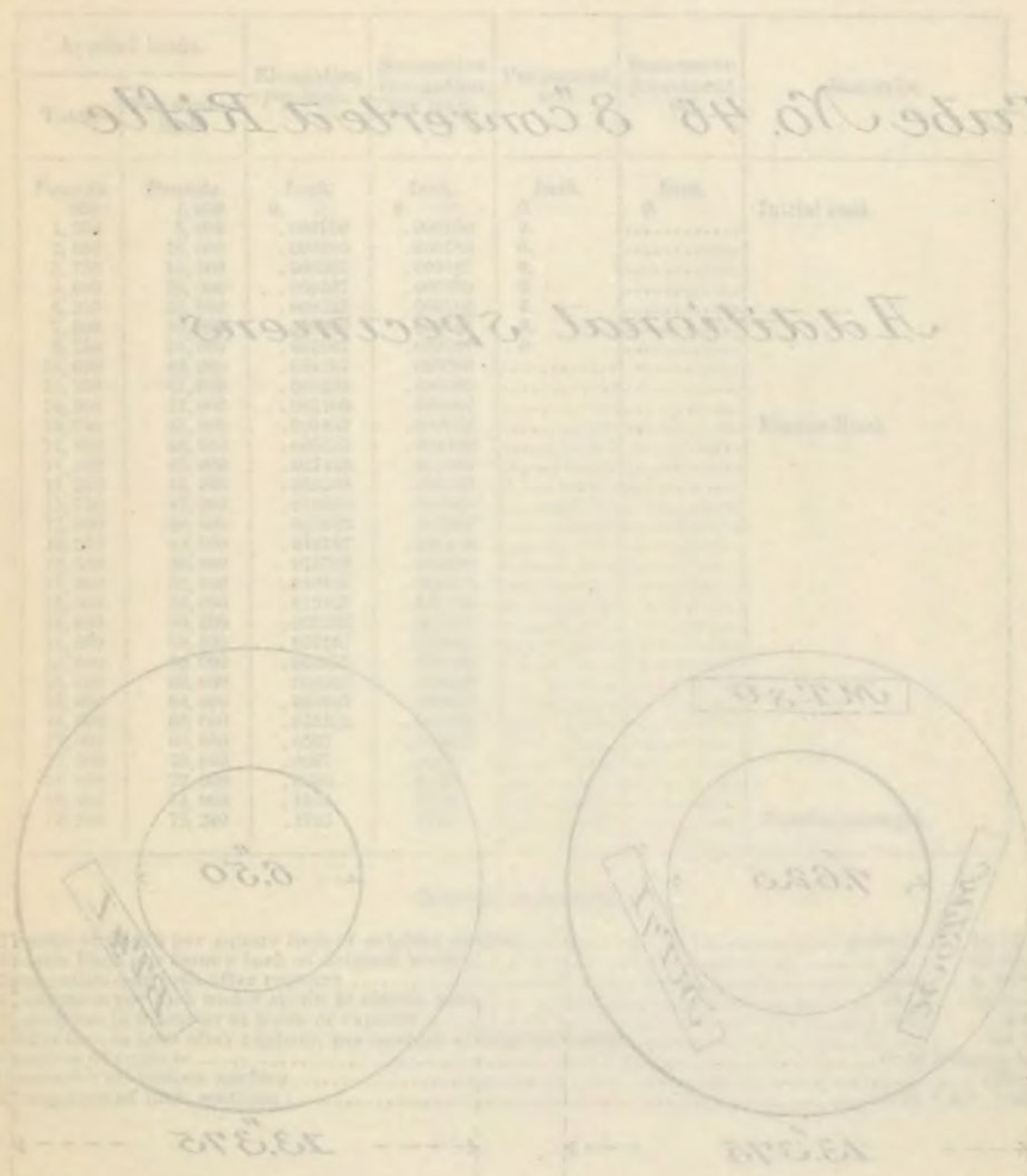
H. Ex. 31—55

No. 2134.

Marks, $\frac{1}{2}$ in.

Diameter, 1.361.

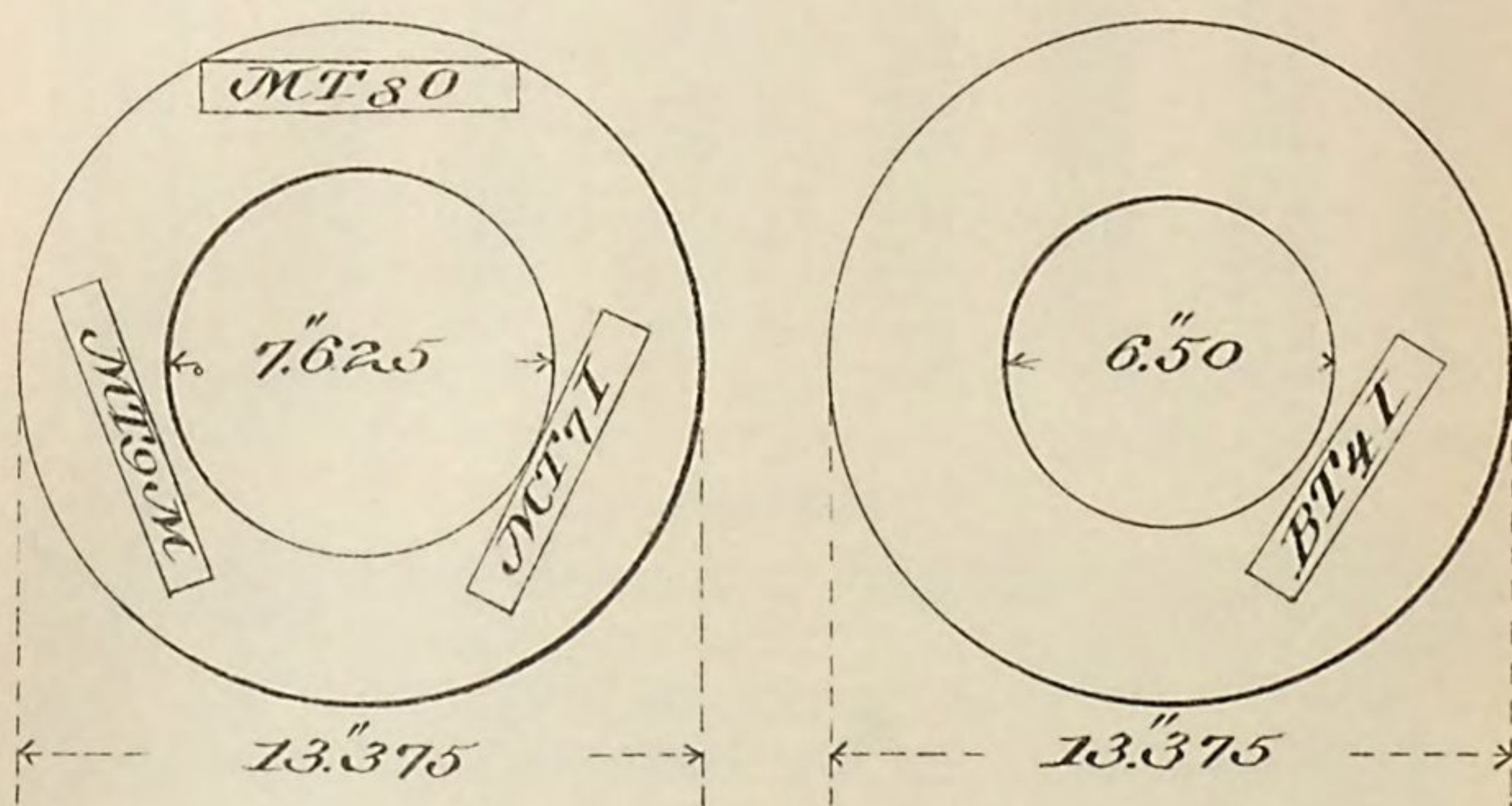
Sectional area, .25 square inch.



H Ex 31 495

Tube No. 46 8" converted Rifle

Additional specimens



H Ex 3/ 49 2

No. 2434.

Marks, ^{8 T₄₆}
B T₄ I

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000200	.000100	0.	.....	
3,750	15,000	.000367	.000167	0.	.....	
5,000	20,000	.000567	.000200	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
10,000	40,000	.001267	.000200	.....	.....	
10,250	41,000	.001333	.000066	.....	.....	
10,500	42,000	.001400	.000067	.....	.....	
10,750	43,000	.001433	.000033	.....	.....	Elastic limit.
11,000	44,000	.005833	.004400	.....	.....	
11,250	45,000	.007433	.001600	.....	.....	
11,500	46,000	.009000	.001567	.....	.....	
11,750	47,000	.010033	.001033	.....	.....	
12,000	48,000	.011033	.001000	.....	.....	
12,250	49,000	.012167	.001134	.....	.....	
12,500	50,000	.013767	.001600	.....	.....	
13,000	52,000	.016467	.002700	.....	.....	
13,500	54,000	.019167	.002700	.....	.....	
14,000	56,000	.022333	.003166	.....	.....	
14,500	58,000	.026167	.003834	.....	.....	
15,000	60,000	.030333	.004166	.....	.....	
15,500	62,000	.034667	.004334	.....	.....	
16,000	64,000	.039667	.005000	.....	.....	
16,500	66,000	.045833	.006166	.....	.....	
17,000	68,000	.0567	.010867	.....	.....	
17,500	70,000	.0667	.0100	.....	.....	
18,000	72,000	.0800	.0133	.....	.....	
18,500	74,000	.1033	.0233	.....	.....	
18,810	75,240	.1733	.0700	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	75,240
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	0.2867
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.204
Reduction in area after rupture, per centum of original section.....		59.3
Position of rupture.....	1".40 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".15, ".41*, ".30	

No. 2435.

Marks, ^{8 T₄₆}_{M T, I}
Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001133	.000200	0.	.....	
10,000	40,000	.001300	.000167	.....	.....	Elastic limit.
10,250	41,000	.001600	.000300	.....	.....	
10,500	42,000	.002833	.001233	.....	.....	
10,750	43,000	.004667	.001834	.....	.....	
11,000	44,000	.007433	.002766	.....	.....	
11,250	45,000	.008333	.000900	.....	.....	
11,500	46,000	.009633	.001300	.....	.....	
11,750	47,000	.010433	.000800	.....	.....	
12,000	48,000	.011500	.001067	.....	.....	
12,250	49,000	.012667	.001167	.....	.....	
12,500	50,000	.014000	.001333	.....	.....	
13,000	52,000	.016667	.002667	.....	.....	
13,500	54,000	.019167	.002500	.....	.....	
14,000	56,000	.021833	.002666	.....	.....	
14,500	58,000	.025167	.003334	.....	.....	
15,000	60,000	.029000	.003833	.....	.....	
15,500	62,000	.033000	.004000	.....	.....	
16,000	64,000	.037333	.004333	.....	.....	
16,500	66,000	.0433	.005967	.....	.....	
17,000	68,000	.0533	.0100	.....	.....	
17,500	70,000	.0633	.0100	.....	.....	
18,000	72,000	.0700	.0067	.....	.....	
18,500	74,000	.0867	.0167	.....	.....	
19,000	76,000	.1100	.0233	.....	.....	
19,200	76,800	.1600	.0500	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	76,800
Elastic limit per square inch of original section	do...	40,000
Elongation per inch after rupture	inch..	0.2300
Elongation per inch under strain at elastic limit	do...	.001300
Reduction in diameter at point of rupture	do...	.174
Reduction in area after rupture, per centum of original section		52.2
Position of rupture	".85 from neck	
Character of broken surface	silky	
Elongation of inch sections	".13, ".17, ".39*	

No. 2436.

Marks, $\frac{8}{M} \frac{T_{46}}{T_8 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000200	.000100	0.	.....	
3,750	15,000	.000333	.000133	0.	.....	
5,000	20,000	.000500	.000167	0.	.....	
6,250	25,000	.000667	.000167	0.	.....	
7,500	30,000	.000833	.000166	0.	.....	
8,750	35,000	.001033	.000200	0.	.....	Elastic limit.
9,000	36,000	.002033	.001000	.....	.....	
9,250	37,000	.003600	.001567	.....	.....	
9,500	38,000	.005000	.001400	.....	.....	
9,750	39,000	.006367	.001367	.....	.....	
10,000	40,000	.008100	.001733	.....	.....	
10,250	41,000	.009367	.001267	.....	.....	
10,500	42,000	.010400	.001033	.....	.....	
10,750	43,000	.011333	.000933	.....	.....	
11,000	44,000	.012300	.000967	.....	.....	
11,250	45,000	.013667	.001367	.....	.....	
11,500	46,000	.014867	.001200	.....	.....	
11,750	47,000	.016000	.001133	.....	.....	
12,000	48,000	.017167	.001167	.....	.....	
12,250	49,000	.018433	.001266	.....	.....	
12,500	50,000	.019700	.001267	.....	.....	
13,000	52,000	.022667	.002967	.....	.....	
13,500	54,000	.026000	.003333	.....	.....	
14,000	56,000	.029500	.003500	.....	.....	
14,500	58,000	.033333	.003833	.....	.....	
15,000	60,000	.038833	.005500	.....	.....	
15,500	62,000	.0433	.004467	.....	.....	
16,000	64,000	.0533	.0100	.....	.....	
16,500	66,000	.0633	.0100	.....	.....	
17,000	68,000	.0700	.0067	.....	.....	
17,500	70,000	.0833	.0133	.....	.....	
18,000	72,000	.1033	.0200	.....	.....	
18,310	73,240	.1600	.0567	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	73,240
Elastic limit per square inch of original section	do...	35,000
Elongation per inch after rupture	inch..	0.2167
Elongation per inch under strain at elastic limit	do...	.001033
Reduction in diameter at point of rupture	do...	.114
Reduction in area after rupture, per centum of original section		36.4
Position of rupture	1".05 from neck	
Character of broken surface	granular; flaky spot at circumference	
Elongation of inch sections	".35*, ".19, ".11	

No. 2437.

Marks, $\frac{8}{M} T_{16}$
Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000467	.000200	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
7,750	31,000	.001000	.000033	.....	.....	
8,000	32,000	.001033	.000033	.....	.....	
8,250	33,000	.001067	.000034	.....	.....	
8,500	34,000	.001133	.000066	.....	.....	Elastic limit.
8,750	35,000	.002433	.001300	.....	.....	
9,000	36,000	.006833	.004400	.....	.....	
9,250	37,000	.007500	.000667	.....	.....	
9,500	38,000	.008233	.000733	.....	.....	
9,750	39,000	.009267	.001034	.....	.....	
10,000	40,000	.010400	.001133	.....	.....	
10,500	42,000	.012333	.001933	.....	.....	
11,000	44,000	.014667	.002334	.....	.....	
11,500	46,000	.017100	.002433	.....	.....	
12,000	48,000	.019500	.002400	.....	.....	
12,500	50,000	.022333	.002833	.....	.....	
13,000	52,000	.025400	.003067	.....	.....	
13,500	54,000	.027333	.001933	.....	.....	
14,000	56,000	.032333	.005000	.....	.....	
14,500	58,000	.037000	.004667	.....	.....	
15,000	60,000	.0433	.0063	.....	.....	
15,500	62,000	.0500	.0067	.....	.....	
16,000	64,000	.0567	.0067	.....	.....	
16,500	66,000	.0667	.0100	.....	.....	
17,000	68,000	.0767	.0100	.....	.....	
17,500	70,000	.0967	.0200	.....	.....	
18,000	72,000	.1300	.0333	.....	.....	
18,280	73,120	.1733	.0433	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	73,120
Elastic limit per square inch of original section	do...	34,000
Elongation per inch after rupture	inch..	0.2333
Elongation per inch under strain at elastic limit	do...	.001133
Reduction in diameter at point of rupture	do...	.094
Reduction in area after rupture, per centum of original section		30.6
Position of rupture	1".55 from neck	
Character of broken surface	granular; flaky spot at circumference	
Elongation of inch sections	".18, ".28, ".24	

No. 2116.

Marks, $\frac{8}{B} \frac{T_{47}}{T_{11}}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
10,000	40,000	.001367	.000200	.000033	.000033	
10,250	41,000	.001400	.000033			Elastic limit.
10,500	42,000	.001433	.000033	.....	.....	
10,750	43,000	.003467	.002034	.....	.....	
11,000	44,000	.005200	.001733	.....	.....	
11,250	45,000	.008500	.003300	.....	.....	
11,500	46,000	.010000	.001500	.....	.....	
11,750	47,000	.011333	.001333	.....	.....	
12,000	48,000	.012333	.001000	.....	.....	
12,250	49,000	.013200	.000867	.....	.....	
12,500	50,000	.014167	.000967	.....	.....	
12,750	51,000	.015767	.001600	.....	.....	
13,000	52,000	.017467	.001700	.....	.....	
13,250	53,000	.018833	.001366	.....	.....	
13,500	54,000	.020233	.001400	.....	.....	
13,750	55,000	.021667	.001434	.....	.....	
14,000	56,000	.023500	.001833	.....	.....	
14,250	57,000	.025167	.001667	.....	.....	
14,500	58,000	.027233	.002066	.....	.....	
14,750	59,000	.029000	.001767	.....	.....	
15,000	60,000	.031600	.002600	.....	.....	
15,500	62,000	.036667	.005067	.....	.....	
16,000	64,000	.041667	.005000	.....	.....	
16,500	66,000	.048333	.006666	.....	.....	
17,000	68,000	.056667	.008334	.....	.....	
17,500	70,000	.0667	.010033	.....	.....	
18,000	72,000	.0900	.0233	.....	.....	
18,500	74,000	.1200	.0300	.....	.....	
18,610	74,440	.1733	.0533			Tensile strength.

General summary.

Specific gravity.....	7.8607
Hardness.....	11.81
Tensile strength per square inch of original section..... pounds..	74,440
Elastic limit per square inch of original section..... do.....	42,000
Elongation per inch after rupture..... inch..	0.2767
Elongation per inch under strain at elastic limit..... do.....	.001433
Reduction in diameter at point of rupture..... do.....	.184
Reduction in area after rupture, per centum of original section.....	51.6
Position of rupture.....	1 inch from neck
Character of broken surface.....	silky; cracks opened in surface of stem
Elongation of inch sections.....	".45", ".22", ".16

No. 2117.

Marks, ^{8 T₄₇}_{B T₂ O}

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000300	.000133	0.	.....	
3,750	15,000	.000500	.000200	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.000967	.000134	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001133	0	.....	.....	
9,250	37,000	.001167	.000034			Elastic limit.
9,500	38,000	.001200	.000033	.....	.....	
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.012267	.011034	.....	.....	
10,250	41,000	.012833	.000566	.....	.....	
10,500	42,000	.013867	.001034	.....	.....	
10,750	43,000	.015067	.001200	.....	.....	
11,000	44,000	.016167	.001100	.....	.....	
11,250	45,000	.017533	.001366	.....	.....	
11,500	46,000	.019200	.001667	.....	.....	
11,750	47,000	.020000	.000800			Tensile strength.
12,000	48,000	.021667	.001667	.....	.....	
12,250	49,000	.023667	.002000	.....	.....	
12,500	50,000	.025367	.001700	.....	.....	
12,750	51,000	.027067	.001700	.....	.....	
13,000	52,000	.028900	.001833	.....	.....	
13,250	53,000	.030500	.001600	.....	.....	
13,500	54,000	.032833	.002333	.....	.....	
13,750	55,000	.034733	.001900	.....	.....	
14,000	56,000	.037433	.002700	.....	.....	
14,250	57,000	.040000	.002567			Tensile strength.
14,500	58,000	.043500	.003500	.....	.....	
14,750	59,000	.046500	.003000	.....	.....	
15,000	60,000	.049833	.003333	.....	.....	
15,500	62,000	.057667	.007834	.....	.....	
16,000	64,000	.0667	.009033	.....	.....	
16,500	66,000	.0833	.0166	.....	.....	
17,000	68,000	.1000	.0167	.....	.....	
17,500	70,000	.1333	.0333	.....	.....	
17,630	70,520	.1800	.0467	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	70,520
Elastic limit per square inch of original section.....	do...	39,000
Elongation per inch after rupture.....	inch..	0.2833
Elongation per inch under strain at elastic limit.....	do...	.001233
Reduction in diameter at point of rupture.....	do...	.184
Reduction in area after rupture, per centum of original section.....		54.6
Position of rupture.....	".60 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".40*, ".30, ".15	

No. 2118.

Marks, $\frac{8T_4}{B T_3 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000800	.000133	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033			Elastic limit.
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001667	.000434	.....	.....	
10,000	40,000	.012733	.010066	.....	.....	
10,250	41,000	.013733	.001000	.....	.....	
10,500	42,000	.014867	.001134	.....	.....	
10,750	43,000	.015933	.001066	.....	.....	
11,000	44,000	.017367	.001434	.....	.....	
11,250	45,000	.018533	.001166	.....	.....	
11,500	46,000	.020400	.001867	.....	.....	
11,750	47,000	.021700	.001300			Tensile strength.
12,000	48,000	.023367	.001667	.....	.....	
12,250	49,000	.024933	.001566	.....	.....	
12,500	50,000	.026833	.001900	.....	.....	
12,750	51,000	.028433	.001600	.....	.....	
13,000	52,000	.031167	.002734	.....	.....	
13,250	53,000	.033533	.002366	.....	.....	
13,500	54,000	.035833	.002300	.....	.....	
13,750	55,000	.038000	.002167	.....	.....	
14,000	56,000	.041000	.003000	.....	.....	
14,250	57,000	.043900	.002900	.....	.....	
14,500	58,000	.046500	.002600	.....	.....	
14,750	59,000	.050100	.003600	.....	.....	
15,000	60,000	.054333	.004233	.....	.....	
15,500	62,000	.0633	.008967	.....	.....	
16,000	64,000	.0733	.0100	.....	.....	
16,500	66,000	.0933	.0200	.....	.....	
17,000	68,000	.1267	.0334	.....	.....	
17,300	69,200	.1767	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	69,200
Elastic limit per square inch of original section.....	do...	38,000
Elongation per inch after rupture.....	inch..	0.2800
Elongation per inch under strain at elastic limit.....	do...	.001233
Reduction in diameter at point of rupture.....	do...	.184
Reduction in area after rupture, per centum of original section.....	.....	54.6
Position of rupture.....	.....	1 inch from neck
Character of broken surface.....	.....	silky; opened cracks in surface of stem
Elongation of inch sections.....	.....	".48, ".22, ".14

No. 2119.

Marks, $\frac{8}{M} T_{47}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000433	.000133	— .000033	— .000033	
5,000	20,000	.000600	.000167	— .000033	0.	
6,250	25,000	.000800	.000200	— .000033	0.	
7,500	30,000	.000967	.000167	— .000033	0.	
8,750	35,000	.001100	.000133	— .000033	0.	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034			Elastic limit.
9,500	38,000	.001200	.000033	.....	.....	
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.012867	.011634	.....	.....	
10,250	41,000	.013600	.000733	.....	.....	
10,500	42,000	.014367	.000767	.....	.....	
10,750	43,000	.015333	.000966	.....	.....	
11,000	44,000	.016500	.001167	.....	.....	
11,250	45,000	.017667	.001167	.....	.....	
11,500	46,000	.019000	.001333			Tensile strength.
11,750	47,000	.020500	.001500	.....	.....	
12,000	48,000	.021833	.001333	.....	.....	
12,250	49,000	.023167	.001334	.....	.....	
12,500	50,000	.025000	.001833	.....	.....	
12,750	51,000	.026667	.001667	.....	.....	
13,000	52,000	.028333	.001666	.....	.....	
13,250	53,000	.030000	.001667	.....	.....	
13,500	54,000	.032100	.002100	.....	.....	
13,750	55,000	.033833	.001733	.....	.....	
14,000	56,000	.036667	.002834	.....	.....	
14,250	57,000	.039000	.002333	.....	.....	
14,500	58,000	.041500	.002500	.....	.....	
14,750	59,000	.044000	.002500	.....	.....	
15,000	60,000	.047333	.003333	.....	.....	
15,500	62,000	.054333	.007000	.....	.....	
16,000	64,000	.062167	.007834	.....	.....	
16,500	66,000	.0700	.007833	.....	.....	
17,000	68,000	.0900	.0200	.....	.....	
17,500	70,000	.1067	.0167	.....	.....	
18,000	72,000	.1433	.0366	.....	.....	
18,060	72,240	.1867	.0434	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	72,240
Elastic limit per square inch of original section.....	do...	39,000
Elongation per inch after rupture.....	inch..	0.2933
Elongation per inch under strain at elastic limit.....	do...	.001233
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface.....	silky; opened cracks in surface of stem	
Elongation of inch sections.....	".20, ".48*, ".20	

No. 2120.

Marks, $\frac{8}{M} \frac{T_{47}}{T_2 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000633	.000200	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033			Elastic limit.
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001300	.000067	.....	.....	
10,000	40,000	.001367	.000067	.000033	.000033	
10,250	41,000	.001400	.000033	.....	.....	
10,500	42,000	.012133	.010733	.....	.....	
10,750	43,000	.012667	.000534	.....	.....	
11,000	44,000	.013800	.001133	.....	.....	
11,250	45,000	.015000	.001200	.....	.....	
11,500	46,000	.016333	.001333			
11,750	47,000	.017667	.001334	.....	.....	
12,000	48,000	.019367	.001700	.....	.....	
12,250	49,000	.020667	.001300	.....	.....	
12,500	50,000	.021800	.001133	.....	.....	
12,750	51,000	.023333	.001533	.....	.....	
13,000	52,000	.024933	.001600	.....	.....	
13,250	53,000	.026567	.001634	.....	.....	
13,500	54,000	.028167	.001900	.....	.....	
13,750	55,000	.030333	.001866			
14,000	56,000	.032333	.002000	.....	.....	
14,250	57,000	.034067	.001734	.....	.....	
14,500	58,000	.037067	.003000	.....	.....	
14,750	59,000	.039167	.002100	.....	.....	
15,000	60,000	.042333	.003166	.....	.....	
15,500	62,000	.048833	.006500	.....	.....	
16,000	64,000	.055666	.006834	.....	.....	
16,500	66,000	.065000	.009333	.....	.....	
17,000	68,000	.0767	.0117			Tensile strength.
17,500	70,000	.0967	.0200	.....	.....	
18,000	72,000	.1300	.0333	.....	.....	
18,170	72,680	.1800	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	72,680
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch..	0.2667
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.144
Reduction in area after rupture, per centum of original section		44.6
Position of rupture	$\frac{3}{4}$ inch from middle of stem	
Character of broken surface	silky; opened cracks in surface of stem	
Elongation of inch sections	".29, ".32*, ".19	

No. 2121.

Marks, $\frac{8}{M} T_{47}$
 $\frac{M}{T_3} M$
 Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000300	.000167	0.	-----	
3,750	15,000	.000467	.000167	0.	-----	
5,000	20,000	.000633	.000166	0.	-----	
6,250	25,000	.000800	.000167	0.	-----	
7,500	30,000	.000967	.000167	0.	-----	
8,750	35,000	.001133	.000166	0.	-----	Elastic limit.
9,000	36,000	.005300	.004167	-----	-----	
9,250	37,000	.009067	.003767	-----	-----	
9,500	38,000	.010000	.000933	-----	-----	
9,750	39,000	.010800	.000800	-----	-----	
10,000	40,000	.011667	.000867	-----	-----	
10,250	41,000	.012733	.001066	-----	-----	
10,500	42,000	.013900	.001167	-----	-----	
10,750	43,000	.015033	.001133	-----	-----	
11,000	44,000	.016000	.000967	-----	-----	
11,250	45,000	.017433	.001433	-----	-----	
11,500	46,000	.019000	.001567	-----	-----	
11,750	47,000	.020000	.001000	-----	-----	
12,000	48,000	.021267	.001267	-----	-----	
12,250	49,000	.022700	.001433	-----	-----	
12,500	50,000	.024067	.001367	-----	-----	
12,750	51,000	.025600	.001533	-----	-----	
13,000	52,000	.027467	.001867	-----	-----	
13,250	53,000	.029033	.001566	-----	-----	
13,500	54,000	.030733	.001700	-----	-----	
13,750	55,000	.032500	.001767	-----	-----	
14,000	56,000	.034667	.002167	-----	-----	
14,250	57,000	.036333	.001666	-----	-----	
14,500	58,000	.038767	.002434	-----	-----	
14,750	59,000	.041167	.002400	-----	-----	
15,000	60,000	.043767	.002600	-----	-----	
15,500	62,000	.050000	.006233	-----	-----	
16,000	64,000	.057333	.007333	-----	-----	
16,500	66,000	.065500	.008167	-----	-----	
17,000	68,000	.078000	.012500	-----	-----	
17,500	70,000	.0933	.0153	-----	-----	
18,000	72,000	.1133	.0200	-----	-----	
18,390	73,560	.1767	.0634	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	73,560
Elastic limit per square inch of original section.....	do...	35,000
Elongation per inch after rupture.....	inch..	0.2333
Elongation per inch under strain at elastic limit.....	do...	.001133
Reduction in diameter at point of rupture.....	do...	.114
Reduction in area after rupture, per centum of original section.....		36.4
Position of rupture.....	1 inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".31*, ".23, ".16	

No. 2158.

Marks, $\frac{8}{B} \frac{T_{48}}{T_1 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	Elastic limit.
9,000	36,000	.001333	.000166	.....	.....	
9,250	37,000	.006000	.004667	.....	.....	
9,500	38,000	.010500	.004500	.....	.....	
9,750	39,000	.011667	.001167	.....	.....	
10,000	40,000	.012667	.001000	.....	.....	
10,250	41,000	.013733	.001066	.....	.....	
10,500	42,000	.015167	.001434	.....	.....	
10,750	43,000	.016533	.001366	.....	.....	
11,000	44,000	.018333	.001800	.....	.....	
11,250	45,000	.019667	.001334	.....	.....	
11,500	46,000	.021333	.001666	.....	.....	
11,750	47,000	.022900	.001567	.....	.....	
12,000	48,000	.024900	.002000	.....	.....	
12,250	49,000	.026333	.001433	.....	.....	
12,500	50,000	.028733	.002400	.....	.....	
13,000	52,000	.032667	.003934	.....	.....	
13,500	54,000	.037833	.005166	.....	.....	
14,000	56,000	.044000	.006167	.....	.....	
14,500	58,000	.051667	.007667	.....	.....	
15,000	60,000	.060000	.008333	.....	.....	
15,500	62,000	.070667	.010667	.....	.....	
16,000	64,000	.0867	.016033	.....	.....	
16,500	66,000	.1067	.0200	.....	.....	
17,000	68,000	.1567	.0500	.....	.....	
17,050	68,200	.1833	.0266	.....	.....	Tensile strength.

General summary.

Specific gravity.....	7.8586
Hardness.....	10.01
Tensile strength per square inch of original section.....pounds..	68,200
Elastic limit per square inch of original section.....do....	35,000
Elongation per inch after rupture.....inch..	0.2767
Elongation per inch under strain at elastic limit.....do....	.001167
Reduction in diameter at point of rupture.....do....	.134
Reduction in area after rupture, per centum of original section.....	41.9
Position of rupture.....	$\frac{3}{8}$ inch from middle of stem
Character of broken surface, granular, 50 per centum; silky, 50 per centum; opened cracks in surface of stem.	
Elongation of inch sections.....	".25, ".40*, ".18

No. 2159.

Marks, $\frac{8}{B} \frac{T_{48}}{T_2 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.		
2,500	10,000	.000300	.000167	0.		
3,750	15,000	.000433	.000133	0.		
5,000	20,000	.000600	.000167	0.		
6,250	25,000	.000767	.000167	0.		
7,500	30,000	.000933	.000166	0.		
8,750	35,000	.001100	.000167	0.		
9,000	36,000	.001167	.000067			Elastic limit.
9,250	37,000	.001233	.000066	.....	.....	
9,500	38,000	.003333	.002100	.....	.....	
9,750	39,000	.005167	.001834	.....	.....	
10,000	40,000	.007467	.002300	.....	.....	
10,250	41,000	.008667	.001200	.....	.....	
10,500	42,000	.009833	.001166	.....	.....	
10,750	43,000	.010733	.000900	.....	.....	
11,000	44,000	.011900	.001167	.....	.....	
11,250	45,000	.013333	.001433	.....	.....	
11,500	46,000	.014533	.001200	.....	.....	
11,750	47,000	.015667	.001134	.....	.....	
12,000	48,000	.017067	.001400	.....	.....	
12,250	49,000	.018500	.001433	.....	.....	
12,500	50,000	.020333	.001833	.....	.....	
13,000	52,000	.023333	.003000	.....	.....	
13,500	54,000	.027067	.003734	.....	.....	
14,000	56,000	.030400	.003333	.....	.....	
14,500	58,000	.034500	.004100	.....	.....	
15,000	60,000	.039333	.004833	.....	.....	
15,500	62,000	.045333	.006000	.....	.....	
16,000	64,000	.051833	.006500			Tensile strength.
16,500	66,000	.061333	.009500	.....	.....	
17,000	68,000	.072000	.010667	.....	.....	
17,500	70,000	.0933	.0213	.....	.....	
18,000	72,000	.1233	.0300			
18,160	72,640	.1667	.0434			

General summary.

Tensile strength per square inch of original section	pounds..	72,640
Elastic limit per square inch of original section	do...	37,000
Elongation per inch after rupture	inch..	0.2267
Elongation per inch under strain at elastic limit	do...	.001233
Reduction in diameter at point of rupture	do...	.134
Reduction in area after rupture, per centum of original section		41.9
Position of rupture	inch from neck	
Character of broken surface	silky	
Elongation of inch sections	".36*, ".18, ".14	

No. 2160.

Marks, ^{8 T₁₈}_{B T₃ M}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	.....	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	Elastic limit.
9,500	38,000	.001367	.000167	.....	.....	
9,750	39,000	.006333	.004966	.....	.....	
10,000	40,000	.008000	.001667	.....	.....	
10,250	41,000	.008700	.000700	.....	.....	
10,500	42,000	.009700	.001000	.....	.....	
10,750	43,000	.010700	.001000	.....	.....	
11,000	44,000	.012133	.001433	.....	.....	
11,250	45,000	.013733	.001600	.....	.....	
11,500	46,000	.015033	.001300	.....	.....	
11,750	47,000	.016000	.000967	.....	.....	
12,000	48,000	.017333	.001333	.....	.....	
12,250	49,000	.018500	.001167	.....	.....	
12,500	50,000	.020667	.002167	.....	.....	
13,000	52,000	.023733	.003066	.....	.....	
13,500	54,000	.027333	.003600	.....	.....	
14,000	56,000	.032333	.005000	.....	.....	
14,500	58,000	.036000	.003667	.....	.....	
15,000	60,000	.041433	.005433	.....	.....	
15,500	62,000	.047333	.005900	.....	.....	
16,000	64,000	.055833	.008500	.....	.....	
16,500	66,000	.065000	.009167	.....	.....	
17,000	68,000	.078333	.013333	.....	.....	
17,500	70,000	.1000	.021667	.....	.....	
17,930	71,720	.1733	.0733	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	71,720
Elastic limit per square inch of original section.....	do ..	37,000
Elongation per inch after rupture.....	inch..	0.2600
Elongation per inch under strain at elastic limit.....	do ..	.001200
Reduction in diameter at point of rupture.....	do ..	.154
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	1 inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".39*, ".22, ".17	

No. 2161.

Marks, $\frac{8 T_{48}}{M T_1 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000367	.000200	0.	.....	
3,750	15,000	.000467	.000100	0.	.....	
5,000	20,000	.000667	.000200	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001133	.000133	0.	.....	
9,000	36,000	.001200	.000067	.....	.....	
9,250	37,000	.001233	.000033			Elastic limit.
9,500	38,000	.001300	.000067	.....	.....	
9,750	39,000	.001333	.000033	.....	.....	
10,000	40,000	.001367	.000034	.....	.....	
10,250	41,000	.012000	.010633	.....	.....	
10,500	42,000	.012700	.000700	.....	.....	
10,750	43,000	.013500	.000800	.....	.....	
11,000	44,000	.014333	.000833	.....	.....	
11,250	45,000	.015500	.001167	.....	.....	
11,500	46,000	.016767	.001267	.....	.....	
11,750	47,000	.017833	.001066	.....	.....	
12,000	48,000	.019333	.001500	.....	.....	
12,250	49,000	.020667	.001334	.....	.....	
12,500	50,000	.021767	.001100	.....	.....	
13,000	52,000	.024500	.002733	.....	.....	
13,500	54,000	.027667	.003167	.....	.....	
14,000	56,000	.031167	.003500	.....	.....	
14,500	58,000	.034500	.003333	.....	.....	
15,000	60,000	.038467	.003967	.....	.....	
15,500	62,000	.043333	.004866	.....	.....	
16,000	64,000	.048833	.005500	.....	.....	
16,500	66,000	.055000	.006167	.....	.....	
17,000	68,000	.061667	.006667	.....	.....	
17,500	70,000	.0700	.008333	.....	.....	
18,000	72,000	.0867	.0167	.....	.....	
18,500	74,000	.1000	.0133	.....	.....	
18,980	75,920	.1400	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	75,920
Elastic limit per square inch of original section	do...	40,000
Elongation per inch after rupture	inch..	0.1500
Elongation per inch under strain at elastic limit	do...	.001367
Reduction in diameter at point of rupture	do...	.054
Reduction in area after rupture, per centum of original section		18.3
Position of rupture	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface	granular, 15 per centum; dull flaky, 85 per centum	
Elongation of inch sections	".11, ".20*, ".14	

No. 2162.

Marks, $\frac{8}{M} T_{48}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	.000033	.000033	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033			Elastic limit.
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.011333	.000100	.....	.....	
10,000	40,000	.012600	.001267	.....	.....	
10,250	41,000	.013333	.000733	.....	.....	
10,500	42,000	.014333	.001000	.....	.....	
10,750	43,000	.015500	.001167	.....	.....	
11,000	44,000	.016867	.001367	.....	.....	
11,250	45,000	.018100	.001233	.....	.....	
11,500	46,000	.019500	.001400	.....	.....	
11,750	47,000	.020833	.001333	.....	.....	
12,000	48,000	.022333	.001500	.....	.....	
12,250	49,000	.023733	.001400	.....	.....	
12,500	50,000	.025400	.001667	.....	.....	
13,000	52,000	.028833	.003433	.....	.....	
13,500	54,000	.032667	.003834	.....	.....	
14,000	56,000	.037333	.004666	.....	.....	
14,500	58,000	.042333	.005000	.....	.....	
15,000	60,000	.047833	.005500	.....	.....	
15,500	62,000	.054000	.006167	.....	.....	
16,000	64,000	.061667	.007667	.....	.....	
16,500	66,000	.071667	.010000	.....	.....	
17,000	68,000	.0833	.011633	.....	.....	
17,500	70,000	.1000	.0167	.....	.....	
18,000	72,000	.1333	.0333	.....	.....	
18,200	72,800	.1800	.0467			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	72,800
Elastic limit per square inch of original section.....	do...	38,000
Elongation per inch after rupture.....	inch..	0.2400
Elongation per inch under strain at elastic limit.....	do...	.001233
Reduction in diameter at point of rupture.....	do...	.134
Reduction in area after rupture, per centum of original section.....		41.9
Position of rupture.....	".45 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".20, ".35*, ".17	

H. Ex 31—56

No. 2163.

Marks, $\frac{8 T_{48}}{M T_3 M}$
Diameter, ".564.
Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001200	.000067	.....	.....	
9,250	37,000	.001233	.000033	.....	.....	Elastic limit.
9,500	38,000	.010667	.009434	.....	.....	
9,750	39,000	.012000	.001333	.....	.....	
10,000	40,000	.013200	.001200	.....	.....	
10,250	41,000	.013733	.000533	.....	.....	
10,500	42,000	.015000	.001267	.....	.....	
10,750	43,000	.016167	.001167	.....	.....	
11,000	44,000	.017500	.001333	.....	.....	
11,250	45,000	.018667	.001167	.....	.....	
11,500	46,000	.020400	.001733	.....	.....	
11,750	47,000	.021600	.001200	.....	.....	
12,000	48,000	.023033	.001433	.....	.....	
12,250	49,000	.024667	.001634	.....	.....	
12,500	50,000	.026500	.001833	.....	.....	
13,000	52,000	.030200	.003700	.....	.....	
13,500	54,000	.034500	.004300	.....	.....	
14,000	56,000	.038000	.003500	.....	.....	
14,500	58,000	.043333	.005333	.....	.....	
15,000	60,000	.049167	.005834	.....	.....	
15,500	62,000	.056667	.007500	.....	.....	
16,000	64,000	.065000	.008333	.....	.....	
16,500	66,000	.075333	.010333	.....	.....	
17,000	68,000	.0933	.017967	.....	.....	
17,500	70,000	.1100	.0167	.....	.....	
17,880	71,520	.1667	.0567	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	71,520
Elastic limit per square inch of original section.....	do...	37,000
Elongation per inch after rupture.....	inch..	0.2333
Elongation per inch under strain at elastic limit.....	do...	.001233
Reduction in diameter at point of rupture.....	do...	.124
Reduction in area after rupture, per centum of original section.....		39.2
Position of rupture.....	$\frac{3}{4}$ inch from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".30*, ".27, ".13	

[Additional specimens.]

No. 2493.

Marks, ^{S T₄₈}_{B T₄ I}

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000433	.000200	0.	.....	
5,000	20,000	.000633	.000260	0.	.....	
6,250	25,000	.000833	.000200	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001133	.000133	.....	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033			Elastic limit.
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001267	.000034	.....	.....	
10,000	40,000	.001400	.000133	.....	.....	
10,250	41,000	.006000	.004600	.....	.....	
10,500	42,000	.010000	.004000	.....	.....	
10,750	43,000	.011333	.001333	.....	.....	
11,000	44,000	.012133	.000800	.....	.....	
11,250	45,000	.013100	.000967	.....	.....	
11,500	46,000	.014700	.001600			Tensile strength.
11,750	47,000	.016000	.001300	.....	.....	
12,000	48,000	.017867	.001867	.....	.....	
12,250	49,000	.019033	.001166	.....	.....	
12,500	50,000	.020933	.001900	.....	.....	
13,000	52,000	.024833	.003900	.....	.....	
13,500	54,000	.028333	.003500	.....	.....	
14,000	56,000	.032500	.004167	.....	.....	
14,500	58,000	.036900	.004400	.....	.....	
15,000	60,000	.042667	.005767	.....	.....	
15,500	62,000	.049333	.006666			
16,000	64,000	.058333	.009000	.....	.....	
16,500	66,000	.0700	.011667	.....	.....	
17,000	68,000	.0867	.0167	.....	.....	
17,500	70,000	.1133	.0266	.....	.....	
17,760	71,040	.1600	.0467			

General summary.

Tensile strength per square inch of original section	pounds..	71,040
Elastic limit per square inch of original section	do...	39,000
Elongation per inch after rupture	inch..	0.2967
Elongation per inch under strain at elastic limit	do...	.001267
Reduction in diameter at point of rupture	do...	.205
Reduction in area after rupture, per centum of original section		59.3
Position of rupture	1".60 from neck	
Character of broken surface	silky	
Elongation of inch sections	".23, ".50*, ".16	

No. 2494.

Marks, $\frac{8}{B} \frac{T_{48}}{T_{50}}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000267	.000134	0.	-----	
3,750	15,000	.000433	.000166	0.	-----	
5,000	20,000	.000633	.000200	0.	-----	
6,250	25,000	.000800	.000167	0.	-----	
7,500	30,000	.000967	.009167	0.	-----	
8,750	35,000	.001133	.000166	-----	-----	
9,000	36,000	.001200	.000067	-----	-----	
9,250	37,000	.001233	.000033	-----	-----	Elastic limit.
9,500	38,000	.001400	.000167	-----	-----	
9,750	39,000	.010567	.000167	-----	-----	
10,000	40,000	.011600	.001033	-----	-----	
10,500	42,000	.014000	.002400	-----	-----	
11,000	44,000	.016833	.002833	-----	-----	
11,500	46,000	.020000	.003167	-----	-----	
12,000	48,000	.022533	.002533	-----	-----	
12,500	50,000	.026167	.003634	-----	-----	
13,000	52,000	.029900	.003733	-----	-----	
13,500	54,000	.034000	.004100	-----	-----	Tensile strength.
14,000	56,000	.039000	.005000	-----	-----	
14,500	58,000	.044200	.005200	-----	-----	
15,000	60,000	.050667	.006467	-----	-----	
15,500	62,000	.058667	.008000	-----	-----	
16,000	64,000	.0700	.011333	-----	-----	
16,500	66,000	.0833	.0133	-----	-----	
17,000	68,000	.0967	.0134	-----	-----	
17,500	70,000	.1567	.0600	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	70,000
Elastic limit per square inch of original section.....	do...	37,000
Elongation per inch after rupture.....	inch..	0.2867
Elongation per inch under strain at elastic limit.....	do...	.001233
Reduction in diameter at point of rupture.....	do...	.194
Reduction in area after rupture, per centum of original section.....		57.0
Position of rupture.....	1".70 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".21, ".49*, ".16	

No. 2495.

Marks, $\frac{8}{B} \frac{T_{48}}{T_6} M$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000800	.000200	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	.....	.....	
9,000	36,000	.001200	.000067	.....	.....	Elastic limit.
9,250	37,000	.011333	.010133	.....	.....	
9,500	38,000	.012000	.000667	.....	.....	
9,750	39,000	.012500	.000500	.....	.....	
10,000	40,000	.013800	.001300	.....	.....	
10,500	42,000	.016333	.002533	.....	.....	
11,000	44,000	.019333	.003000	.....	.....	
11,500	46,000	.022167	.002834	.....	.....	
12,000	48,000	.025333	.003166	.....	.....	
12,500	50,000	.028500	.003167	.....	.....	
13,000	52,000	.032667	.004167	.....	.....	
13,500	54,000	.036667	.004000	.....	.....	
14,000	56,000	.041533	.004866	.....	.....	
14,500	58,000	.047333	.005800	.....	.....	
15,000	60,000	.054000	.006667	.....	.....	
15,500	62,000	.0633	.0093	.....	.....	
16,000	64,000	.0700	.0067	.....	.....	
16,500	66,000	.0867	.0167	.....	.....	
17,000	68,000	.1067	.0200	.....	.....	
17,500	70,000	.1467	.0400	.....	.....	
17,590	70,360	.1833	.0366	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	70,360
Elastic limit per square inch of original section.....	do...	36,000
Elongation per inch after rupture.....	inch..	0.2567
Elongation per inch under strain at elastic limit.....	do...	.001200
Reduction in diameter at point of rupture	do...	.135
Reduction in area after rupture, per centum of original section.....		41.9
Position of rupture.....	1 inch from neck	
Character of broken surface.....	.....	silky
Elongation of inch sections.....	".16, ".26, ".35*	

No. 2496.

Marks, ⁸ T₄₈
M T₄ I
Diameter, ".564.
Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000300	.000200	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.001000	.000200	0.	.....	
8,750	35,000	.001167	.000167	.....	.....	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001233	.000033			Elastic limit.
9,500	38,000	.001333	.000100	.....	.....	
9,750	39,000	.001367	.000034	.....	.....	
10,000	40,000	.012867	.011500	.....	.....	
10,500	42,000	.013967	.001100	.....	.....	
11,000	44,000	.016400	.002433	.....	.....	
11,500	46,000	.018667	.002267	.....	.....	
12,000	48,000	.021367	.002700	.....	.....	
12,500	50,000	.024333	.002966	.....	.....	
13,000	52,000	.027667	.003334	.....	.....	
13,500	54,000	.031333	.003666	.....	.....	
14,000	56,000	.035000	.003667	.....	.....	
14,500	58,000	.038933	.003933	.....	.....	
15,000	60,000	.044667	.005734	.....	.....	
15,500	62,000	.049667	.005000	.....	.....	
16,000	64,000	.055667	.006000			Tensile strength.
16,500	66,000	.0633	.007633	.....	.....	
17,000	68,000	.0733	.0100	.....	.....	
17,500	70,000	.0933	.0200	.....	.....	
18,000	72,000	.1100	.0167	.....	.....	
18,500	74,000	.1600	.0500			
18,510	74,040	.1733	.0133	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	74,040
Elastic limit per square inch of original section	do..	39,000
Elongation per inch after rupture.....	inch..	0.2033
Elongation per inch under strain at elastic limit	do..	.001367
Reduction in diameter at point of rupture	do..	.094
Reduction in area after rupture, per centum of original section		30.6
Position of rupture.....	1 inch from neck	
Character of broken surface	granular; dull flaky spot at the circumference	
Elongation of inch sections.....	".14, ".22, ".25"	

No. 2497.

Marks, $\frac{8}{M} \frac{T_{48}}{T_5 O}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000700	.000200	0.	.....	
6,250	25,000	.000900	.000200	0.	.....	
7,500	30,000	.001033	.000133	0.	.....	
8,750	35,000	.001167	.000134	.....	.....	
9,000	36,000	.001267	.000100	.....	.....	
9,250	37,000	.001333	.000066			Elastic limit.
9,500	38,000	.001367	.000034	.....	.....	
9,750	39,000	.001900	.000533	.....	.....	
10,000	40,000	.011400	.009500	.....	.....	
10,500	42,000	.013333	.001933	.....	.....	
11,000	44,000	.015567	.002234	.....	.....	
11,500	46,000	.018167	.002600	.....	.....	
12,000	48,000	.021000	.002833	.....	.....	
12,500	50,000	.024000	.003000	.....	.....	
13,000	52,000	.027333	.003333			Tensile strength.
13,500	54,000	.030833	.003500	.....	.....	
14,000	56,000	.035333	.004500	.....	.....	
14,500	58,000	.039667	.004334	.....	.....	
15,000	60,000	.045333	.005666	.....	.....	
15,500	62,000	.053333	.008000	.....	.....	
16,000	64,000	.059667	.006334	.....	.....	
16,500	66,000	.0667	.007033	.....	.....	
17,000	68,000	.0800	.0133	.....	.....	
17,500	70,000	.0967	.0167	.....	.....	
18,000	72,000	.1333	.0366	.....	.....	
18,160	72,640	.1800	.0467	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	72,640
Elastic limit per square inch of original section	do...	38,000
Elongation per inch after rupture	inch..	0.2800
Elongation per inch under strain at elastic limit	do...	.001367
Reduction in diameter at point of rupture	do...	.165
Reduction in area after rupture, per centum of original section		49.7
Position of rupture	1".20 from neck	
Character of broken surface	silky	
Elongation of inch sections	".39*, ".26, ".19	

No. 2498.

Marks, $\frac{8}{M} T_{48}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	.....	.....	
2,500	10,000	.000233	.000133	.....	.....	
3,750	15,000	.000400	.000167	.....	.....	
5,000	20,000	.000567	.000167	.....	.....	
6,250	25,000	.000733	.000166	.....	.....	
7,500	30,000	.000900	.000167	.....	.....	
8,750	35,000	.001100	.000200	.....	.....	
9,000	36,000	.001167	.000067	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	Elastic limit.
9,500	38,000	.001400	.000200	.....	.....	
9,750	39,000	.011400	.010000	.....	.....	
10,000	40,000	.013000	.001600	.....	.....	
10,500	42,000	.015167	.002167	.....	.....	
11,000	44,000	.017667	.002500	.....	.....	
11,500	46,000	.020233	.002566	.....	.....	
12,000	48,000	.023333	.003100	.....	.....	
12,500	50,000	.026333	.003000	.....	.....	
13,000	52,000	.030000	.003667	.....	.....	
13,500	54,000	.034000	.004000	.....	.....	
14,000	56,000	.038667	.004667	.....	.....	
14,500	58,000	.043333	.004666	.....	.....	
15,000	60,000	.049000	.005667	.....	.....	
15,500	62,000	.055333	.006333	.....	.....	
16,000	64,000	.0633	.007967	.....	.....	
16,500	66,000	.0733	.0100	.....	.....	
17,000	68,000	.0933	.0200	.....	.....	
17,500	70,000	.1067	.0134	.....	.....	
18,000	72,000	.1433	.0366	.....	.....	
18,100	72,400	.1800	.0367	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	72,400
Elastic limit per square inch of original section.....	do...	37,000
Elongation per inch after rupture.....	inch..	0.2567
Elongation per inch under strain at elastic limit.....	do...	.001200
Reduction in diameter at point of rupture.....	do...	.175
Reduction in area after rupture, per centum of original section.....		52.2
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".14, ".46*, ".17	

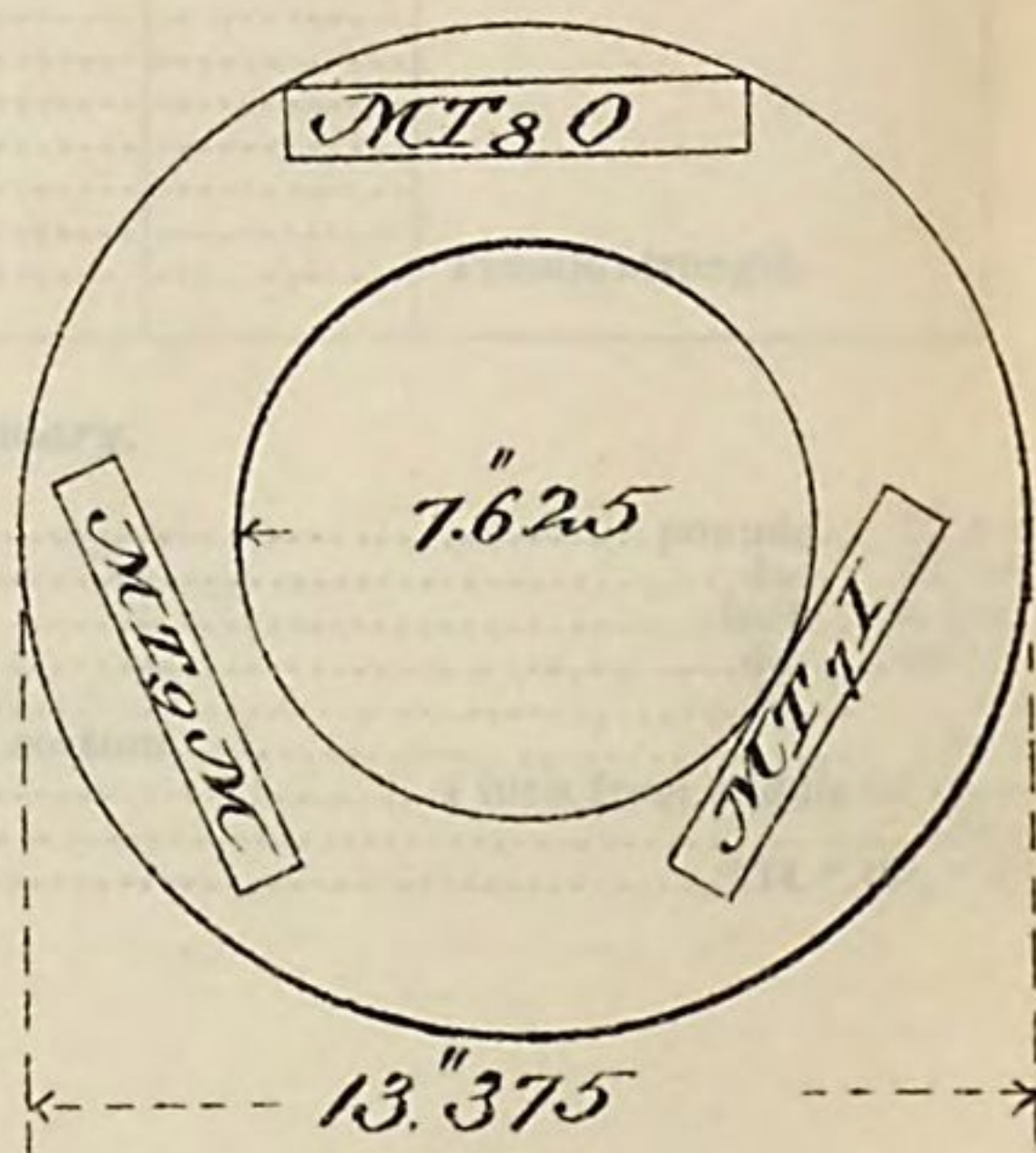
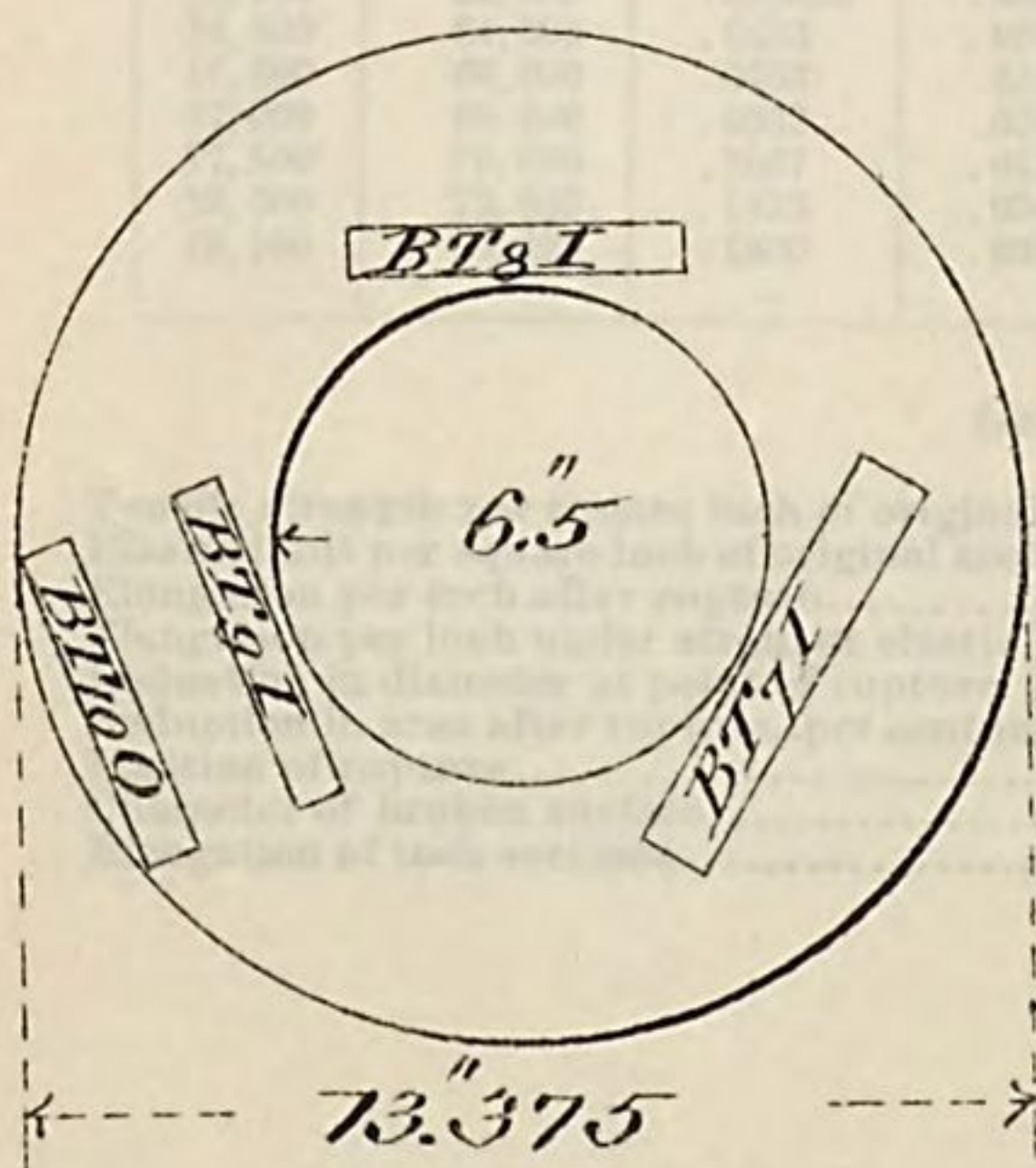
EX 31 49 S

No. 2498.

Morse, H. J.

Diameter, 8.65.

Sectional area, 35 square inch.

*Tube No. 48 8" converted Rifle**Additional specimens*

H Ex 3/ 49 2

No. 2713.

Marks, ^{8 T₄₈}
B T₇ I

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent act.	Successive permanent act.	Remrks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.		Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000500	.000200	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000800	.000133	0.	.....	
7,500	30,000	.001000	.000200	0.	.....	
8,750	35,000	.001133	.000133		.....	
10,000	40,000	.001333	.000200		.....	
10,250	41,000	.001367	.000034		.....	
10,500	42,000	.001400	.000033		.....	
10,750	43,000	.001400	0.		.....	
11,000	44,000	.001467	.000067		.....	
11,250	45,000	.001500	.000033		.....	
11,500	46,000	.001533	.000033		.....	
11,750	47,000	.001600	.000067		.....	
12,000	48,000	.001667	.000067		.....	
12,250	49,000	.001733	.000066		.....	Elastic limit.
12,500	50,000	.001800	.000066		.....	
12,750	51,000	.001867	.000066		.....	
13,000	52,000	.001933	.000066		.....	
13,250	53,000	.002000	.000066		.....	
13,500	54,000	.002067	.000066		.....	
13,750	55,000	.002133	.000066		.....	
14,000	56,000	.002200	.000066		.....	
14,250	57,000	.002267	.000066		.....	
14,500	58,000	.002333	.000066		.....	
14,750	59,000	.002400	.000066		.....	
15,000	60,000	.002467	.000066		.....	
15,250	61,000	.002533	.000066		.....	
15,500	62,000	.002600	.000066		.....	
15,750	63,000	.002667	.000066		.....	
16,000	64,000	.002733	.000066		.....	
16,250	65,000	.002800	.000066		.....	
16,500	66,000	.002867	.000066		.....	
16,750	67,000	.002933	.000066		.....	
17,000	68,000	.003000	.000066		.....	
17,250	69,000	.003067	.000066		.....	
17,500	70,000	.003133	.000066		.....	
17,750	71,000	.003200	.000066		.....	
18,000	72,000	.003267	.000066		.....	
18,250	73,000	.003333	.000066		.....	
18,500	74,000	.003400	.000066		.....	
18,750	75,000	.003467	.000066		.....	
19,000	76,000	.003533	.000066		.....	
19,250	77,000	.003600	.000066		.....	
19,500	78,000	.003667	.000066		.....	
19,750	79,000	.003733	.000066		.....	
20,000	80,000	.003800	.000066		.....	
20,250	81,000	.003867	.000066		.....	
20,500	82,000	.003933	.000066		.....	
20,750	83,000	.004000	.000066		.....	
21,000	84,000	.004067	.000066		.....	
21,250	85,000	.004133	.000066		.....	
21,500	86,000	.004200	.000066		.....	
21,750	87,000	.004267	.000066		.....	
22,000	88,000	.004333	.000066		.....	
22,250	89,000	.004400	.000066		.....	
22,500	90,000	.004467	.000066		.....	
22,750	91,000	.004533	.000066		.....	
23,000	92,000	.004600	.000066		.....	
23,250	93,000	.004667	.000066		.....	
23,500	94,000	.004733	.000066		.....	
23,750	95,000	.004800	.000066		.....	
24,000	96,000	.004867	.000066		.....	
24,250	97,000	.004933	.000066		.....	
24,500	98,000	.005000	.000066		.....	
24,750	99,000	.005067	.000066		.....	
25,000	100,000	.005133	.000066		.....	
25,250	101,000	.005200	.000066		.....	
25,500	102,000	.005267	.000066		.....	
25,750	103,000	.005333	.000066		.....	
26,000	104,000	.005400	.000066		.....	
26,250	105,000	.005467	.000066		.....	
26,500	106,000	.005533	.000066		.....	
26,750	107,000	.005600	.000066		.....	
27,000	108,000	.005667	.000066		.....	
27,250	109,000	.005733	.000066		.....	
27,500	110,000	.005800	.000066		.....	
27,750	111,000	.005867	.000066		.....	
28,000	112,000	.005933	.000066		.....	
28,250	113,000	.006000	.000066		.....	
28,500	114,000	.006067	.000066		.....	
28,750	115,000	.006133	.000066		.....	
29,000	116,000	.006200	.000066		.....	
29,250	117,000	.006267	.000066		.....	
29,500	118,000	.006333	.000066		.....	
29,750	119,000	.006400	.000066		.....	
30,000	120,000	.006467	.000066		.....	
30,250	121,000	.006533	.000066		.....	
30,500	122,000	.006600	.000066		.....	
30,750	123,000	.006667	.000066		.....	
31,000	124,000	.006733	.000066		.....	
31,250	125,000	.006800	.000066		.....	
31,500	126,000	.006867	.000066		.....	
31,750	127,000	.006933	.000066		.....	
32,000	128,000	.007000	.000066		.....	
32,250	129,000	.007067	.000066		.....	
32,500	130,000	.007133	.000066		.....	
32,750	131,000	.007200	.000066		.....	
33,000	132,000	.007267	.000066		.....	
33,250	133,000	.007333	.000066		.....	
33,500	134,000	.007400	.000066		.....	
33,750	135,000	.007467	.000066		.....	
34,000	136,000	.007533	.000066		.....	
34,250	137,000	.007600	.000066		.....	
34,500	138,000	.007667	.000066		.....	
34,750	139,000	.007733	.000066		.....	
35,000	140,000	.007800	.000066		.....	
35,250	141,000	.007867	.000066		.....	
35,500	142,000	.007933	.000066		.....	
35,750	143,000	.008000	.000066		.....	
36,000	144,000	.008067	.000066		.....	
36,250	145,000	.008133	.000066		.....	
36,500	146,000	.008200	.000066		.....	
36,750	147,000	.008267	.000066		.....	
37,000	148,000	.008333	.000066		.....	
37,250	149,000	.008400	.000066		.....	
37,500	150,000	.008467	.000066		.....	
37,750	151,000	.008533	.000066		.....	
38,000	152,000	.008600	.000066		.....	
38,250	153,000	.008667	.000066		.....	
38,500	154,000	.008733	.000066		.....	
38,750	155,000	.008800	.000066		.....	
39,000	156,000	.008867	.000066		.....	
39,250	157,000	.008933	.000066		.....	
39,500	158,000	.009000	.000066		.....	
39,750	159,000	.009067	.000066		.....	
40,000	160,000	.009133	.000066		.....	
40,250	161,000	.009200	.000066		.....	
40,500	162,000	.009267	.000066		.....	
40,750	163,000	.009333	.000066		.....	
41,000	164,000	.009400	.000066		.....	
41,250	165,000	.009467	.000066		.....	
41,500	166,000	.009533	.000066		.....	
41,750	167,000	.009600	.000066		.....	
42,000	168,000	.009667	.000066		.....	
42,250	169,000	.009733	.000066		.....	
42,500	170,000	.009800	.000066		.....	
42,750	171,000	.009867	.000066		.....	
43,000	172,000	.009933	.000066		.....	
43,250	173,000	.010000	.000066		.....	
43,500	174,000	.010067	.000066		.....	
43,750	175,000	.010133	.000066		.....	
44,000	176,000	.010200	.000066		.....	
44,250	177,000	.010267	.000066		.....	
44,500	178,000	.010333	.000066		.....	
44,750	179,000	.010400	.000066		.....	
45,000	180,000	.010467	.000066		.....	
45,250	181,000	.010533	.000066		.....	
45,500	182,000	.010600	.000066		.....	
45,750	183,000	.010667	.000066		.....	
46,000	184,000	.010733	.000066		.....	
46,250	185,000	.010800	.000066		.....	
46,500	186,000	.010867	.000066		.....	
46,750	187,000	.010933	.000066		.....	
47,000	188,000	.011000	.000066		.....	
47,250	189,000	.011067	.000066		.....	
47,500	190,000	.011133	.000066		.....	
47,750	191,000	.011200	.000066		.....	
48,000	192,000	.011267	.000066		.....	
48,250	193,000	.011333	.000066		.....	
48,500	194,000	.0114				

No. 2717.

Marks, $\frac{8}{B} \frac{T_{48}}{T_8} I$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000300	.000150	0.	.....	
3,000	15,000	.000500	.000200	0.	.....	
4,000	20,000	.000700	.000200	0.	.....	
5,000	25,000	.000900	.000200	0.	.....	
6,000	30,000	.001000	.000100	0.	.....	
7,000	35,000	.001250	.000250	0.	.....	
8,000	40,000	.001450	.000200	.000050	.000050	
9,000	45,000	.001600	.000150	.....	.....	
9,200	46,000	.001650	.000050			Elastic limit.
9,400	47,000	.001650	0.	.....	.....	
9,600	48,000	.001700	.000050	.....	.....	
9,800	49,000	.001750	.000050	.....	.....	
10,000	50,000	.001800	.000050	.....	.....	
10,200	51,000	.001950	.000150	.....	.....	
10,400	52,000	.005000	.003050	.....	.....	
10,600	53,000	.006750	.001750	.....	.....	
10,800	54,000	.008000	.001250	.....	.....	
11,000	55,000	.008750	.000750	.....	.....	
11,200	56,000	.010000	.001250	.....	.....	
11,400	57,000	.011150	.001150	.....	.....	
11,600	58,000	.012500	.001350	.....	.....	
11,800	59,000	.013600	.001100	.....	.....	
12,000	60,000	.014800	.001200	.....	.....	
12,400	62,000	.017150	.002350			Tensile strength.
12,800	64,000	.020000	.002850	.....	.....	
13,200	66,000	.023000	.003000	.....	.....	
13,600	68,000	.026150	.003150	.....	.....	
14,000	70,000	.030000	.003850	.....	.....	
14,400	72,000	.034000	.004000	.....	.....	
14,800	74,000	.038000	.004000	.....	.....	
15,200	76,000	.043500	.005500	.....	.....	
15,600	78,000	.0500	.0065	.....	.....	
16,000	80,000	.0575	.0075	.....	.....	
16,400	82,000	.0650	.0075	.....	.....	
16,800	84,000	.1000	.0350	.....	.....	
16,990	84,950	.1350	.0350	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	84,950
Elastic limit per square inch of original section.....	do...	50,000
Elongation per inch after rupture.....	inch..	0.2500
Elongation per inch under strain at elastic limit.....	do...	.001805
Reduction in diameter at point of rupture.....		.159
Reduction in area after rupture, per centum of original section.....		51.0
Position of rupture.....	1 inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".16, ".34"	

No. 2718.

Marks, ^{8 T₄₈}
B T₉ I

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000200	.000200	0.	-----	
2,000	10,000	.000400	.000200	0.	-----	
3,000	15,000	.000600	.000200	0.	-----	
4,000	20,000	.000750	.000150	0.	-----	
5,000	25,000	.000900	.000150	0.	-----	
6,000	30,000	.001050	.000150	0.	-----	
7,000	35,000	.001250	.000200	.000050	.000050	
8,000	40,000	.001400	.000150	.000050	0.	
9,000	45,000	.001550	.000150	-----	-----	Elastic limit.
9,600	48,000	.001650	.000100	-----	-----	
9,800	49,000	.001700	.000050	-----	-----	
10,000	50,000	.004750	.003050	-----	-----	
10,200	51,000	.008000	.003250	-----	-----	
10,400	52,000	.009000	.001000	-----	-----	
10,600	53,000	.010200	.001200	-----	-----	
10,800	54,000	.011500	.001300	-----	-----	
11,000	55,000	.012500	.001000	-----	-----	
11,200	56,000	.013750	.001250	-----	-----	
11,600	58,000	.016050	.002300	-----	-----	
12,000	60,000	.019000	.002950	-----	-----	
12,400	62,000	.022500	.003500	-----	-----	
12,800	64,000	.025750	.003250	-----	-----	
13,200	66,000	.029000	.003250	-----	-----	
13,600	68,000	.032500	.003500	-----	-----	Tensile strength.
14,000	70,000	.036750	.004250	-----	-----	
14,400	72,000	.042000	.005250	-----	-----	
14,800	74,000	.048750	.006750	-----	-----	
15,200	76,000	.0550	.006250	-----	-----	
15,600	78,000	.0650	.0100	-----	-----	
16,000	80,000	.0800	.0150	-----	-----	
16,400	82,000	.1100	.0300	-----	-----	
16,500	82,500	.1500	.0400	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	82,500
Elastic limit per square inch of original section.....	do...	49,000
Elongation per inch after rupture.....	inch..	0.2350
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do ..	.120
Reduction in area after rupture, per centum of original section.....		43.5
Position of rupture.....	".80 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".30*, ".17	

No. 2719.

Marks, $\frac{8}{B} \frac{T_{48}}{T_{10} O}$

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000150	.000150	0.	.....	
2,000	10,000	.000350	.000200	0.	.....	
3,000	15,000	.000500	.000150	0.	.....	
4,000	20,000	.000650	.000150	0.	.....	
5,000	25,000	.000800	.000150	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001150	.000200	0.	.....	
8,000	40,000	.001300	.000150	0.	.....	
9,000	45,000	.001500	.000200	.....	.....	
10,000	50,000	.001700	.000200			Elastic limit.
10,200	51,000	.001750	.000050	.....	.....	
10,400	52,000	.001800	.000050	.....	.....	
10,600	53,000	.001850	.000050	.....	.....	
10,800	54,000	.001900	.000050	.....	.....	
11,000	55,000	.001900	.000000	.....	.....	
11,200	56,000	.010000	.001000	.....	.....	
11,400	57,000	.010850	.000850	.....	.....	
11,600	58,000	.011700	.000850	.....	.....	
11,800	59,000	.013050	.001350	.....	.....	
12,000	60,000	.014050	.001000	.....	.....	
12,400	62,000	.016300	.002250	.....	.....	
12,800	64,000	.019900	.003600	.....	.....	
13,200	66,000	.022500	.002600	.....	.....	
13,600	68,000	.025500	.003000	.....	.....	
14,000	70,000	.028750	.003250			Tensile strength.
14,400	72,000	.033000	.004250	.....	.....	
14,800	74,000	.037000	.004000	.....	.....	
15,200	76,000	.042000	.005000	.....	.....	
15,600	78,000	.048400	.006400	.....	.....	
16,000	80,000	.0575	.0091	.....	.....	
16,400	82,000	.0650	.0075	.....	.....	
16,800	84,000	.1030	.0350	.....	.....	
17,100	85,500	.1300	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	85,500
Elastic limit per square inch of original section.....	do ..	54,000
Elongation per inch after rupture	inch..	0.2500
Elongation per inch under strain at elastic limit	do ..	.001900
Reduction in diameter at point of rupture	do ..	.145
Reduction in area after rupture, per centum of original section.....		49.1
Position of rupture.....		at middle of stem
Character of broken surface		silky; opened cracks in surface of stem
Elongation of inch sections		".24", ".26"

No. 2714.

Marks, $\frac{8}{M} \frac{T_{48}}{T_7 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000067	.000067	0.	-----	
2,500	10,000	.000100	.000033	0.	-----	
3,750	15,000	.000400	.000300	0.	-----	
5,000	20,000	.000567	.000167	0.	-----	
6,250	25,000	.000800	.000233	0.	-----	
7,500	30,000	.000967	.000167	0.	-----	
8,750	35,000	.001133	.000166	-----	-----	
10,000	40,000	.001300	.000167	-----	-----	
11,250	45,000	.001467	.000167	-----	-----	
11,500	46,000	.001500	.000033	-----	-----	
11,750	47,000	.001533	.000033	-----	-----	
12,000	48,000	.001567	.000034	-----	-----	
12,250	49,000	.001633	.000066	-----	-----	
12,500	50,000	.001700	.000067	-----	-----	
12,750	51,000	.001767	.000067	-----	-----	Elastic limit.
13,000	52,000	.002000	.000233	-----	-----	
13,250	53,000	.002300	.000300	-----	-----	
13,500	54,000	.003000	.000700	-----	-----	
13,750	55,000	.003767	.000767	-----	-----	
14,000	56,000	.005667	.001900	-----	-----	
14,500	58,000	.008567	.002900	-----	-----	
15,000	60,000	.011567	.003000	-----	-----	
15,500	62,000	.014167	.002600	-----	-----	
16,000	64,000	.016533	.002366	-----	-----	
16,500	66,000	.019000	.002467	-----	-----	
17,000	68,000	.021733	.002733	-----	-----	
17,500	70,000	.024733	.003000	-----	-----	
18,000	72,000	.028033	.003300	-----	-----	
18,500	74,000	.031767	.003734	-----	-----	
19,000	76,000	.0350	.003233	-----	-----	
19,500	78,000	.0383	.0033	-----	-----	
20,000	80,000	.0433	.0050	-----	-----	
20,500	82,000	.0600	.0167	-----	-----	
21,000	84,000	.0700	.0100	-----	-----	
21,500	86,000	.0867	.0167	-----	-----	
21,650	86,600	.1067	.0200	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	86,600
Elastic limit per square inch of original section.....	do...	51,000
Elongation per inch after rupture.....	inch..	0.1333
Elongation per inch under strain at elastic limit.....	do...	.001767
Reduction in diameter at point of rupture.....	do...	.0674
Reduction in area after rupture, per centum of original section.....		21.4
Position of rupture.....	".90 from neck	
Character of broken surface.....	granular	
Elongation of inch sections.....	".20*, ".10, ".10	

No. 2715.

Marks, $\frac{8 T_{48}}{M T_{80}}$
 Diameter, $\frac{1}{4}$.564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000300	.000167	0.	-----	
3,750	15,000	.000467	.000167	0.	-----	
5,000	20,000	.000633	.000166	0.	-----	
6,250	25,000	.000800	.000167	0.	-----	
7,500	30,000	.000933	.000133	0.	-----	
8,750	35,000	.001100	.000167	-----	-----	
10,000	40,000	.001267	.000167	-----	-----	
11,250	45,000	.001467	.000200	-----	-----	
11,500	46,000	.001533	.000066	-----	-----	Elastic limit.
11,750	47,000	.001600	.000067	-----	-----	
12,000	48,000	.001633	.000033	-----	-----	
12,250	49,000	.001700	.000067	-----	-----	
12,500	50,000	.002033	.000333	-----	-----	
12,750	51,000	.002333	.000300	-----	-----	
13,000	52,000	.003667	.001334	-----	-----	
13,250	53,000	.004667	.001000	-----	-----	
13,500	54,000	.006333	.001666	-----	-----	
14,000	56,000	.009100	.002767	-----	-----	
14,500	58,000	.011667	.002567	-----	-----	
15,000	60,000	.014000	.002333	-----	-----	
15,500	62,000	.016667	.002667	-----	-----	
16,000	64,000	.019333	.002666	-----	-----	
16,500	66,000	.022667	.003334	-----	-----	
17,000	68,000	.025667	.003000	-----	-----	
17,500	70,000	.028767	.003100	-----	-----	
18,000	72,000	.032333	.003566	-----	-----	
18,500	74,000	.036667	.004334	-----	-----	
19,000	76,000	.0400	.003333	-----	-----	
19,500	78,000	.0467	.0067	-----	-----	
20,000	80,000	.0567	.0100	-----	-----	
20,500	82,000	.0667	.0100	-----	-----	
21,000	84,000	.0900	.0233	-----	-----	
21,400	85,600	.1333	.0433	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	85,600
Elastic limit per square inch of original section.....	do...	49,000
Elongation per inch after rupture.....	inch..	0.1933
Elongation per inch under strain at elastic limit.....	do...	.001700
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section		44.6
Position of rupture.....	at middle of stem	
Character of broken surface	silky	
Elongation of inch sections	"10, ".34*, ".14	

No. 2716.

Marks, $\frac{8 T_{48}}{M T_9 M}$

Diameter, ".560.

Sectional area, .246 square inch.

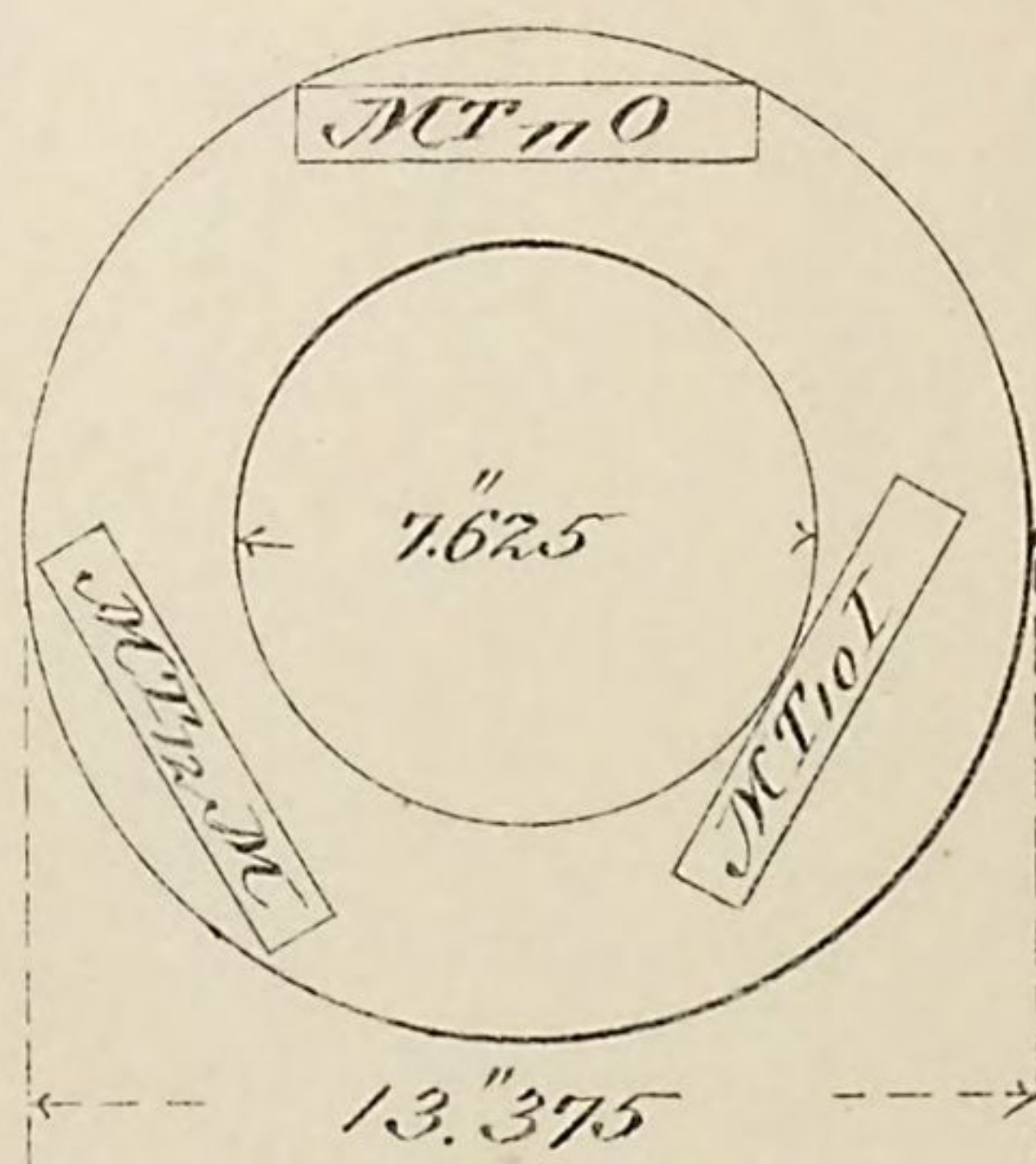
Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
246	1,000	0.	0.	0.	0.	Initial load.
1,230	5,000	.000133	.000133	0.	.....	
2,460	10,000	.000267	.000134	0.	.....	
3,690	15,000	.000467	.000200	0.	.....	
4,920	20,000	.000667	.000200	0.	.....	
6,150	25,000	.000867	.000200	0.	.....	
7,380	30,000	.001033	.000166	0.	.....	
8,610	35,000	.001133	.000100	.....	.....	
9,840	40,000	.001367	.000234	.....	.....	
11,070	45,000	.001533	.000166	.....	.....	
11,316	46,000	.001600	.000067	.....	.....	
11,562	47,000	.001667	.000067	.....	.....	
11,808	48,000	.001700	.000033	.....	.....	
12,054	49,000	.001767	.000067	.....	.....	
12,300	50,000	.001833	.000066	.....	.....	Elastic limit.
12,546	51,000	.002033	.000200	.....	.....	
12,792	52,000	.002433	.000400	.....	.....	
13,038	53,000	.003433	.001000	.....	.....	
13,284	54,000	.004900	.001467	.....	.....	
13,776	56,000	.007067	.002167	.....	.....	
14,268	58,000	.009733	.002666	.....	.....	
14,760	60,000	.012100	.002367	.....	.....	
15,252	62,000	.014667	.002567	.....	.....	
15,744	64,000	.017067	.002400	.....	.....	
16,236	66,000	.019500	.002433	.....	.....	
16,728	68,000	.022800	.003300	.....	.....	
17,220	70,000	.025600	.002800	.....	.....	
17,712	72,000	.028333	.002733	.....	.....	
18,204	74,000	.032333	.004000	.....	.....	
18,696	76,000	.0367	.004367	.....	.....	
19,188	78,000	.0400	.0033	.....	.....	
19,680	80,000	.0467	.0067	.....	.....	
20,172	82,000	.0567	.0100	.....	.....	
20,664	84,000	.0667	.0100	.....	.....	
21,156	86,000	.0767	.0100	.....	.....	
21,648	88,000	.1067	.0300	.....	.....	
21,700	88,210	.1300	.0233	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	88,210
Elastic limit per square inch of original section	do...	50,000
Elongation per inch after rupture	inch..	0.2133
Elongation per inch under strain at elastic limit	do...	.001833
Reduction in diameter at point of rupture	do...	.114
Reduction in area after rupture, per centum of original section		46.3
Position of rupture	1½ inches from neck; oblique	
Character of broken surface	silky	
Elongation of inch sections	".09, ".22*, ".23*	

Tube No. 48 8" converted Rifle

Additional specimens



H Ex 31 49 2

No. 2735.

Marks, $\begin{smallmatrix} 8 & C_n & R_{48} & T \\ & M & T_{10} & I \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	-----	
2,500	10,000	.000267	.000167	0.	-----	
3,750	15,000	.000400	.000133	0.	-----	
5,000	20,000	.000567	.000167	0.	-----	
6,250	25,000	.000700	.000133	0.	-----	
7,500	30,000	.000867	.000167	0.	-----	
8,750	35,000	.001033	.000166	— .000033	— .000033	
10,000	40,000	.001200	.000167	-----	-----	
10,250	41,000	.001233	.000033	-----	-----	Elastic limit.
10,500	42,000	.001367	.000134	-----	-----	
10,750	43,000	.001433	.000066	-----	-----	
11,000	44,000	.001533	.000100	-----	-----	
11,250	45,000	.001700	.000167	-----	-----	
11,500	46,000	.002400	.000700	-----	-----	
11,750	47,000	.003500	.001100	-----	-----	
12,000	48,000	.005000	.001500	-----	-----	
12,250	49,000	.006500	.001500	-----	-----	
12,500	50,000	.007500	.001000	-----	-----	
13,000	52,000	.010000	.002500	-----	-----	
13,500	54,000	.012500	.002500	-----	-----	
14,000	56,000	.014667	.002167	-----	-----	
14,500	58,000	.017167	.002500	-----	-----	
15,000	60,000	.020000	.002833	-----	-----	
15,500	62,000	.023000	.003000	-----	-----	
16,000	64,000	.026200	.003200	-----	-----	
16,500	66,000	.030000	.003800	-----	-----	
17,000	68,000	.034333	.004333	-----	-----	
17,500	70,000	.038667	.004334	-----	-----	
18,000	72,000	.0433	.004633	-----	-----	
18,500	74,000	.0533	.0100	-----	-----	
19,000	76,000	.0600	.0067	-----	-----	
19,500	78,000	.0733	.0133	-----	-----	
20,000	80,000	.1000	.0267	-----	-----	Tensile strength.
20,050	80,200	.1333	.0333	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	80,200
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do...	.001233
Reduction in diameter at point of rupture	do...	.174
Reduction in area after rupture, per centum of original section.....		52.2
Position of rupture.....	1 inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections	".36*, ".16, ".08	

H. Ex. 31—57

No. 2736.

Marks, $\begin{smallmatrix} 8CnR_{48}T \\ M T_{11}O \end{smallmatrix}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	-----	
2,500	10,000	.000267	.000167	0.	-----	
3,750	15,000	.000467	.000200	0.	-----	
5,000	20,000	.000633	.000166	0.	-----	
6,250	25,000	.000767	.000134	0.	-----	
7,500	30,000	.000933	.000166	0.	-----	
8,750	35,000	.001100	.000167	0.	-----	
10,000	40,000	.001367	.000267	-----	-----	
10,250	41,000	.001400	.000033	-----	-----	Elastic limit.
10,500	42,000	.001433	.000033	-----	-----	
10,750	43,000	.002000	.000567	-----	-----	
11,000	44,000	.004333	.002333	-----	-----	
11,250	45,000	.006900	.001667	-----	-----	
11,500	46,000	.007067	.001067	-----	-----	
11,750	47,000	.008333	.001266	-----	-----	
12,000	48,000	.009333	.001000	-----	-----	
12,250	49,000	.010333	.001000	-----	-----	
12,500	50,000	.011000	.000667	-----	-----	
13,000	52,000	.013333	.002333	-----	-----	
13,500	54,000	.016333	.003000	-----	-----	
14,000	56,000	.019000	.002667	-----	-----	
14,500	58,000	.022000	.003000	-----	-----	
15,000	60,000	.025200	.003200	-----	-----	
15,500	62,000	.028333	.003133	-----	-----	Tensile strength.
16,000	64,000	.032333	.004000	-----	-----	
16,500	66,000	.036333	.004000	-----	-----	
17,000	68,000	.041333	.005000	-----	-----	
17,500	70,000	.0467	.005367	-----	-----	
18,000	72,000	.0567	.0100	-----	-----	
18,500	74,000	.0633	.0066	-----	-----	
19,000	76,000	.0800	.0167	-----	-----	
19,000	78,000	.1067	.0267	-----	-----	
19,680	78,720	.1667	.0600	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	78,720
Elastic limit per square inch of original section.....	do..	42,000
Elongation per inch after rupture	inch..	0.2567
Elongation per inch under strain at elastic limit	do....	.001433
Reduction in diameter at point of rupture.....	do....	.164
Reduction in area after rupture, per centum of original section		49.7
Position of rupture.....	1". 60 from neck	
Character of broken surface	silky	
Elongation of inch sections.....	" .15, " .40*, " .22	

No. 2737.

Marks, $\frac{8}{M} \frac{C_n}{T_{12}} \frac{R_{48}}{M} T$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000867	.000200	0.	.....	
7,500	30,000	.001033	.000166	0.	.....	
8,750	35,000	.001200	.000167	.000033	.000033	
9,000	36,000	.001267	.000067	.....	.....	
9,250	37,000	.001300	.000033	.....	.....	
9,500	38,000	.001367	.000067	.....	.....	
9,750	39,000	.001400	.000033	.....	.....	
10,000	40,000	.001467	.000067	.....	.....	
10,250	41,000	.001533	.000066	.....	.....	
10,500	42,000	.001600	.000067			Elastic limit.
10,750	43,000	.001700	.000100	.....	.....	
11,000	44,000	.001867	.000167	.....	.....	
11,250	45,000	.002233	.000366	.....	.....	
11,500	46,000	.003167	.000934	.....	.....	
11,750	47,000	.004533	.001366	.....	.....	
12,000	48,000	.006067	.001534	.....	.....	
12,250	49,000	.006900	.000833	.....	.....	
12,500	50,000	.008267	.001367	.....	.....	
13,000	52,000	.010567	.002300	.....	.....	
13,500	54,000	.012667	.002100	.....	.....	
14,000	56,000	.014833	.002166	.....	.....	
14,500	58,000	.017333	.002500	.....	.....	
15,000	60,000	.020000	.002667	.....	.....	
15,500	62,000	.022667	.002667	.....	.....	
16,000	64,000	.025667	.003000	.....	.....	
16,500	66,000	.029000	.003333	.....	.....	
17,000	68,000	.032667	.003667	.....	.....	
17,500	70,000	.036667	.004000	.....	.....	
18,000	72,000	.041500	.004833	.....	.....	
18,500	74,000	.0467	.0052	.....	.....	
19,000	76,000	.0567	.0100	.....	.....	
19,500	78,000	.0667	.0100	.....	.....	
20,000	80,000	.0767	.0100	.....	.....	
20,500	82,000	.1100	.0333			Tensile strength.
20,540	82,160	.1400	.0300	.....	.....	

General summary.

Tensile strength per square inch of original section pounds.. 82,160
 Elastic limit per square inch of original section do .. 42,000
 Elongation per inch after rupture inch.. 0.2267
 Elongation per inch under strain at elastic limit do... .001600
 Reduction in diameter at point of rupture do... .114
 Reduction in area after rupture, per centum of original section 36.4
 Position of rupture at middle of stem
 Character of broken surface, granular, 60 per centum; silky, 40 per centum; opened cracks in surface
 of stem.
 Elongation of inch sections ".13, ".35*, ".20

No. 2140.

Marks, $\frac{8}{B} \frac{T_{49}}{T_1 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000233	.000100	0.	.....	
3,750	15,000	.000433	.000200	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
9,000	36,000	.001167	.000667			Elastic limit.
9,250	37,000	.002133	.000966	.....	.....	
9,500	38,000	.003433	.001300	.....	.....	
9,750	39,000	.004600	.001167	.....	.....	
10,000	40,000	.006900	.002300	.....	.....	
10,250	41,000	.008767	.001867	.....	.....	
10,500	42,000	.009667	.000900	.....	.....	
10,750	43,000	.010767	.001100	.....	.....	
11,000	44,000	.011767	.001000	.....	.....	
11,250	45,000	.012900	.001133	.....	.....	
11,500	46,000	.014667	.001767	.....	.....	
11,750	47,000	.015667	.001000	.....	.....	
12,000	48,000	.017067	.001400	.....	.....	
12,250	49,000	.018267	.001200	.....	.....	
12,500	50,000	.020100	.001833	.....	.....	
13,000	52,000	.023200	.003100			Tensile strength.
13,500	54,000	.027067	.003867	.....	.....	
14,000	56,000	.030833	.003766	.....	.....	
14,500	58,000	.035000	.004167	.....	.....	
15,000	60,000	.040333	.005333	.....	.....	
15,500	62,000	.046000	.005667	.....	.....	
16,000	64,000	.055667	.009667	.....	.....	
16,500	66,000	.063333	.007666	.....	.....	
17,000	68,000	.078333	.015000	.....	.....	
17,500	70,000	.1000	.021667	.....	.....	
17,800	71,200	.1433	.0433	.....	.....	

General summary.

Specific gravity.....	7.8598
Hardness.....	10.60
Tensile strength per square inch of original section..... pounds..	71,200
Elastic limit per square inch of original section..... do..	36,000
Elongation per inch after rupture..... inch..	0.2067
Elongation per inch under strain at elastic limit..... do..	.001167
Reduction in diameter at point of rupture..... do..	.164
Reduction in area after rupture, per centum of original section.....	49.7
Position of rupture.....	".55 from neck
Character of broken surface.....	silky
Elongation of inch sections.....	".39*, ".13, ".10

No. 2141.

Marks, ⁸ T₄₉
B T₂ O

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000233	.000100	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001133	.000233	.000100	.000100	Elastic limit.
9,000	36,000	.003267	.002134	.....	.....	
9,250	37,000	.006000	.002733	.....	.....	
9,500	38,000	.007600	.001600	.....	.....	
9,750	39,000	.008667	.001067	.....	.....	
10,000	40,000	.009833	.001166	.....	.....	
10,250	41,000	.010933	.001100	.....	.....	
10,500	42,000	.012133	.001200	.....	.....	
10,750	43,000	.013133	.001000	.....	.....	
11,000	44,000	.014267	.001134	.....	.....	
11,250	45,000	.015667	.001400	.....	.....	
11,500	46,000	.016600	.000933	.....	.....	
11,750	47,000	.018067	.001467	.....	.....	
12,000	48,000	.019933	.001866	.....	.....	
12,250	49,000	.020933	.001000	.....	.....	
12,500	50,000	.022600	.001667	.....	.....	
12,750	51,000	.024100	.001500	.....	.....	
13,000	52,000	.026167	.002067	.....	.....	
13,250	53,000	.028000	.001833	.....	.....	
13,500	54,000	.030000	.002000	.....	.....	
13,750	55,000	.032000	.002000	.....	.....	
14,000	56,000	.033900	.001900	.....	.....	
14,250	57,000	.035833	.001933	.....	.....	
14,500	58,000	.038667	.002834	.....	.....	
14,750	59,000	.041167	.002500	.....	.....	
15,000	60,000	.044233	.003066	.....	.....	
15,500	62,000	.051667	.007434	.....	.....	
16,000	64,000	.058833	.007166	.....	.....	
16,500	66,000	.068667	.009834	.....	.....	
17,000	68,000	.0867	.018033	.....	.....	
17,500	70,000	.1100	.0233	.....	.....	
17,900	71,600	.1733	.0633	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	71,600
Elastic limit per square inch of original section.....	do...	35,000
Elongation per inch after rupture.....	inch..	0.2667
Elongation per inch under strain at elastic limit.....	do...	.001133
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	$\frac{3}{8}$ inch from middle of stem	
Character of broken surface.....	silky; trace of granulation	
Elongation of inch sections.....	".23, ".42*, ".15	

No. 2142.

Marks, $\frac{8 T_{49}}{B T_3 M}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	— .000033	— .000033	
2,500	10,000	.000200	.000100	— .000033	0.	
3,750	15,000	.000367	.000167	— .000033	0.	
5,000	20,000	.000533	.000166	— .000033	0.	
6,250	25,000	.000700	.000167	— .000033	0.	
7,500	30,000	.000867	.000167	— .000033	0.	
8,750	35,000	.001000	.000133	— .000033	0.	
9,000	36,000	.001033	.000033	— .000033	0.	
9,250	37,000	.001067	.000034	— .000033	0.	
9,500	38,000	.001133	.000066	— .000033	0.	Elastic limit.
9,750	39,000	.001133	0.	— .000033	0.	
10,000	40,000	.001200	.000067	— .000033	0.	
10,250	41,000	.001233	.000033	— .000033	0.	
10,500	42,000	.001333	.000100	— .000033	0.	
10,750	43,000	.001400	.000067	— .000033	0.	
11,000	44,000	.004500	.003100	— .000033	0.	
11,250	45,000	.005733	.001233	— .000033	0.	
11,500	46,000	.007400	.001667	— .000033	0.	
11,750	47,000	.008267	.000867	— .000033	0.	
12,000	48,000	.009333	.001066	— .000033	0.	Tensile strength.
12,250	49,000	.010000	.000667	— .000033	0.	
12,500	50,000	.011500	.001500	— .000033	0.	
12,750	51,000	.012800	.001300	— .000033	0.	
13,000	52,000	.014000	.001200	— .000033	0.	
13,250	53,000	.015000	.001000	— .000033	0.	
13,500	54,000	.016167	.001167	— .000033	0.	
13,750	55,000	.017500	.001333	— .000033	0.	
14,000	56,000	.018933	.001433	— .000033	0.	
14,250	57,000	.020333	.001400	— .000033	0.	
14,500	58,000	.022167	.001834	— .000033	0.	Tensile strength.
14,750	59,000	.023667	.001500	— .000033	0.	
15,000	60,000	.025333	.001666	— .000033	0.	
15,500	62,000	.028833	.003500	— .000033	0.	
16,000	64,000	.032667	.003834	— .000033	0.	
16,500	66,000	.037333	.004666	— .000033	0.	
17,000	68,000	.043000	.005667	— .000033	0.	
17,500	70,000	.049500	.006500	— .000033	0.	
18,000	72,000	.056667	.007167	— .000033	0.	
18,500	74,000	.0667	.010033	— .000033	0.	
19,000	76,000	.0867	.0200	— .000033	0.	Tensile strength.
19,500	78,000	.1167	.0300	— .000033	0.	
19,580	78,320	.1467	.0300	— .000033	0.	

General summary.

Tensile strength per square inch of original section.....	pounds..	78,320
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	0.2500
Elongation per inch under strain at elastic limit.....	do...	.001400
Reduction in diameter at point of rupture.....	do...	.165
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	at middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".17, ".42*, ".16	

No. 2143.

Marks, $\frac{8T_4}{MT_1I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000267	.000134	0.	-----	
3,750	15,000	.000433	.000166	0.	-----	
5,000	20,000	.000600	.000167	0.	-----	
6,250	25,000	.000767	.000167	0.	-----	
7,500	30,000	.000967	.000200	0.	-----	
8,750	35,000	.001133	.000166	0.	-----	
9,000	36,000	.001167	.000034	-----	-----	
9,250	37,000	.001233	.000066	-----	-----	Elastic limit.
9,500	38,000	.001433	.000200	-----	-----	
9,750	39,000	.004300	.002867	-----	-----	
10,000	40,000	.007333	.003033	-----	-----	
10,250	41,000	.008200	.000867	-----	-----	
10,500	42,000	.009533	.001333	-----	-----	
10,750	43,000	.010333	.000800	-----	-----	
11,000	44,000	.011367	.001034	-----	-----	
11,250	45,000	.012267	.000900	-----	-----	
11,500	46,000	.013333	.001066	-----	-----	
11,750	47,000	.014167	.000834	-----	-----	
12,000	48,000	.015333	.001166	-----	-----	
12,250	49,000	.017000	.001667	-----	-----	
12,500	50,000	.018333	.001333	-----	-----	
13,000	52,000	.020000	.001667	-----	-----	
13,500	54,000	.023000	.003000	-----	-----	
14,000	56,000	.026500	.003500	-----	-----	Tensile strength.
14,500	58,000	.031333	.004833	-----	-----	
15,000	60,000	.034500	.003167	-----	-----	
15,500	62,000	.037833	.003333	-----	-----	
16,000	64,000	.042667	.004834	-----	-----	
16,500	66,000	.049333	.006666	-----	-----	
17,000	68,000	.0567	.007367	-----	-----	
17,500	70,000	.0667	.0100	-----	-----	
18,000	72,000	.0767	.0100	-----	-----	
18,500	74,000	.1033	.0266	-----	-----	
18,890	75,560	.1600	.0567	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	75,560
Elastic limit per square inch of original section	do...	37,000
Elongation per inch after rupture	inch..	0.2667
Elongation per inch under strain at elastic limit	do...	.001233
Reduction in diameter at point of rupture.....	do...	.174
Reduction in area after rupture, per centum of original section.....		52.2
Position of rupture.....	$\frac{1}{2}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections.....	".46*, ".23, ".11	

No. 2144.

Marks, $\frac{8}{M} T_{20}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001100	.000133	0.	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001167	.000034	.....	.....	
9,500	38,000	.001200	.000033	.....	.....	
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001300	.000067	0.	.....	
10,250	41,000	.001333	.000033	.....	.....	
10,500	42,000	.001367	.000034	.....	.....	
10,750	43,000	.001400	.000033	.....	.....	Elastic limit.
11,000	44,000	.001400	.003500	.....	.....	
11,250	45,000	.005600	.000700	.....	.....	
11,500	46,000	.006900	.001300	.....	.....	
11,750	47,000	.008233	.001333	.....	.....	
12,000	48,000	.009333	.001100	.....	.....	
12,250	49,000	.010033	.000700	.....	.....	
12,500	50,000	.011067	.001034	.....	.....	
12,750	51,000	.012067	.001000	.....	.....	
13,000	52,000	.013367	.001300	.....	.....	
13,250	53,000	.014600	.001233	.....	.....	
13,500	54,000	.015600	.001000	.....	.....	
13,750	55,000	.016600	.001000	.....	.....	
14,000	56,000	.018033	.001433	.....	.....	
14,250	57,000	.019667	.001634	.....	.....	
14,500	58,000	.021167	.001500	.....	.....	
14,750	59,000	.022167	.001000	.....	.....	
15,000	60,000	.024333	.002166	.....	.....	
15,500	62,000	.027333	.003000	.....	.....	
16,000	64,000	.030833	.003500	.....	.....	
16,500	66,000	.035000	.004167	.....	.....	
17,000	68,000	.040000	.005000	.....	.....	
17,500	70,000	.045000	.005000	.....	.....	
18,000	72,000	.051667	.006667	.....	.....	
18,500	74,000	.059333	.007666	.....	.....	
19,000	76,000	.0700	.010667	.....	.....	
19,500	78,000	.0900	.0200	.....	.....	
20,000	80,000	.1433	.0533	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	80,000
Elastic limit per square inch of original section	do...	43,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do...	.095
Reduction in area after rupture, per centum of original section		30.6
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface, granular, 60 per centum; dull silky, 40 per centum; opened cracks in surface of stem.		
Elongation of inch sections	".24*, ".16, ".20	

No. 2145.

Marks, $\frac{8 T_{49}}{M T_3 M}$
 Diameter, $\frac{11}{16}$.564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Persquare inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001100	.000133	.....	.....	
9,000	36,000	.001167	.000067	.....	.....	Elastic limit.
9,250	37,000	.001300	.000133	.....	.....	
9,500	38,000	.004833	.003533	.....	.....	
9,750	39,000	.005833	.001000	.....	.....	
10,000	40,000	.007500	.001667	.....	.....	
10,250	41,000	.008833	.001333	.....	.....	
10,500	42,000	.009833	.001000	.....	.....	
10,750	43,000	.010667	.000834	.....	.....	
11,000	44,000	.011667	.001000	.....	.....	
11,250	45,000	.012700	.001033	.....	.....	
11,500	46,000	.014000	.001300	.....	.....	
11,750	47,000	.014933	.000933	.....	.....	
12,000	48,000	.016467	.001534	.....	.....	
12,250	49,000	.017667	.001200	.....	.....	
12,500	50,000	.019167	.001500	.....	.....	
12,750	51,000	.020600	.001433	.....	.....	
13,000	52,000	.021667	.001067	.....	.....	
13,250	53,000	.023067	.001400	.....	.....	
13,500	54,000	.024833	.001766	.....	.....	
13,750	55,000	.026367	.001534	.....	.....	
14,000	56,000	.028600	.002233	.....	.....	
14,250	57,000	.030167	.001567	.....	.....	
14,500	58,000	.032000	.001233	.....	.....	
14,750	59,000	.034000	.002000	.....	.....	
15,000	60,000	.037000	.003000	.....	.....	
15,500	62,000	.042167	.005167	.....	.....	
16,000	64,000	.048000	.005833	.....	.....	
16,500	66,000	.055833	.007833	.....	.....	
17,000	68,000	.063333	.007500	.....	.....	
17,500	70,000	.075000	.011667	.....	.....	
18,000	72,000	.1000	.0250	.....	.....	
18,420	73,680	.1433	.0433	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section pounds.. 73,680
 Elastic limit per square inch of original section do... 36,000
 Elongation per inch after rupture inch.. 0.1933
 Elongation per inch under strain at elastic limit..... do... .001167
 Reduction in diameter at point of rupture do... .114
 Reduction in area after rupture, per centum of original section..... 36.4
 Position of rupture ".70 from neck
 Character of broken surface, granular, 80 per centum; dull silky, 20 per centum; opened cracks in sur-
 face of stem.
 Elongation of inch sections ".33*, ".15, ".10

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No. 2311.

Mark, 2 1/2

Diameter, 2 3/4

Sectional area, 55 square inch.

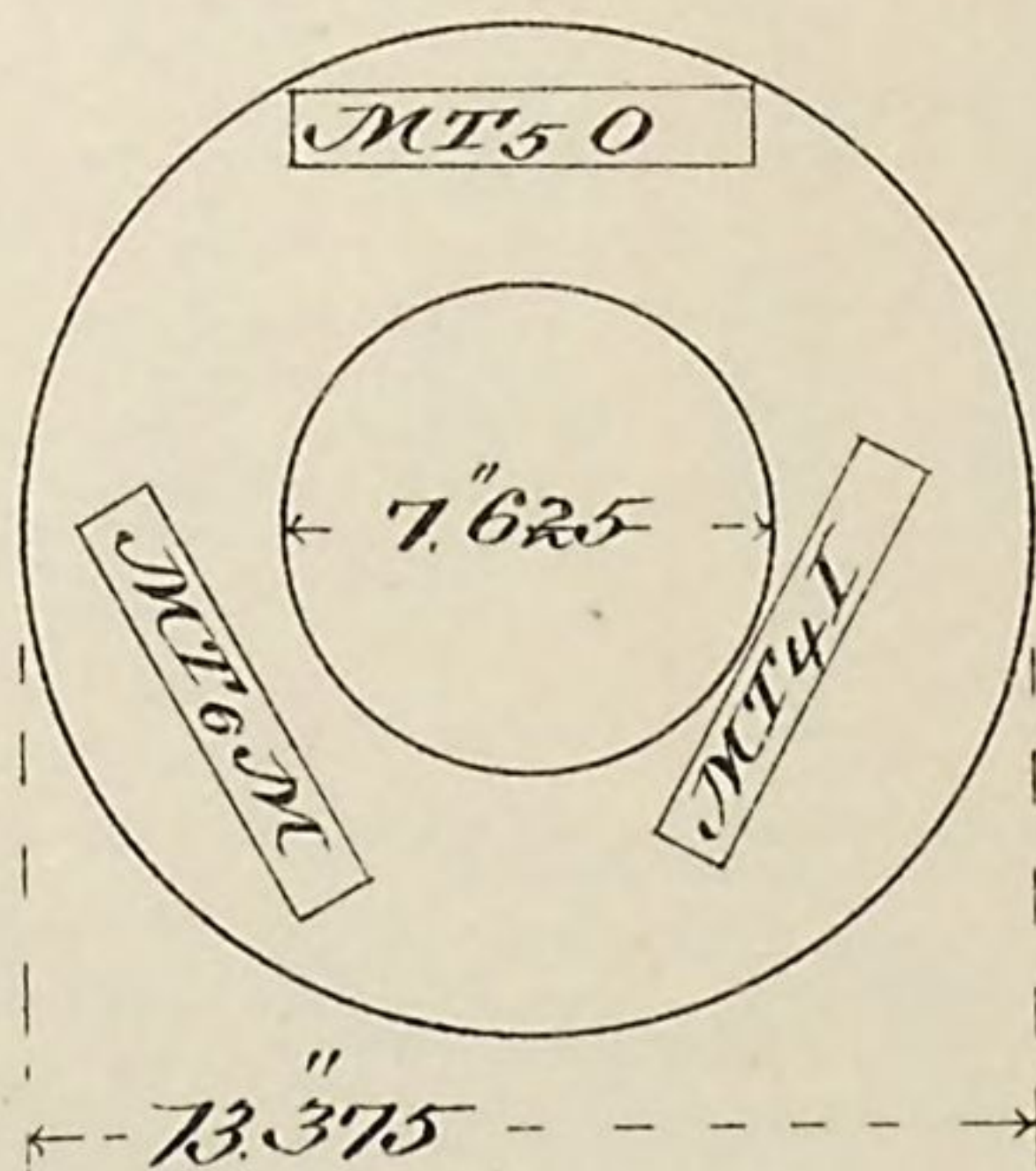
Applied Load	Displacement	Strain	Stress	Modulus of Elasticity	Remarks
1000	0.001	0.0002	10000	29000000	
2000	0.002	0.0004	20000	29000000	
3000	0.003	0.0006	30000	29000000	
4000	0.004	0.0008	40000	29000000	
5000	0.005	0.0010	50000	29000000	
6000	0.006	0.0012	60000	29000000	
7000	0.007	0.0014	70000	29000000	
8000	0.008	0.0016	80000	29000000	
9000	0.009	0.0018	90000	29000000	
10000	0.010	0.0020	100000	29000000	
11000	0.011	0.0022	110000	29000000	
12000	0.012	0.0024	120000	29000000	
13000	0.013	0.0026	130000	29000000	
14000	0.014	0.0028	140000	29000000	
15000	0.015	0.0030	150000	29000000	
16000	0.016	0.0032	160000	29000000	
17000	0.017	0.0034	170000	29000000	
18000	0.018	0.0036	180000	29000000	
19000	0.019	0.0038	190000	29000000	
20000	0.020	0.0040	200000	29000000	
21000	0.021	0.0042	210000	29000000	
22000	0.022	0.0044	220000	29000000	
23000	0.023	0.0046	230000	29000000	
24000	0.024	0.0048	240000	29000000	
25000	0.025	0.0050	250000	29000000	
26000	0.026	0.0052	260000	29000000	
27000	0.027	0.0054	270000	29000000	
28000	0.028	0.0056	280000	29000000	
29000	0.029	0.0058	290000	29000000	
30000	0.030	0.0060	300000	29000000	
31000	0.031	0.0062	310000	29000000	
32000	0.032	0.0064	320000	29000000	
33000	0.033	0.0066	330000	29000000	
34000	0.034	0.0068	340000	29000000	
35000	0.035	0.0070	350000	29000000	
36000	0.036	0.0072	360000	29000000	
37000	0.037	0.0074	370000	29000000	
38000	0.038	0.0076	380000	29000000	
39000	0.039	0.0078	390000	29000000	
40000	0.040	0.0080	400000	29000000	
41000	0.041	0.0082	410000	29000000	
42000	0.042	0.0084	420000	29000000	
43000	0.043	0.0086	430000	29000000	
44000	0.044	0.0088	440000	29000000	
45000	0.045	0.0090	450000	29000000	
46000	0.046	0.0092	460000	29000000	
47000	0.047	0.0094	470000	29000000	
48000	0.048	0.0096	480000	29000000	
49000	0.049	0.0098	490000	29000000	
50000	0.050	0.0100	500000	29000000	



H Ex 31 49 2

Tube No. 49 8" converted Rifle

Additional specimens



H Ex 31 49 2

No. 2371.

Marks, $\frac{8}{M} \frac{T_{49}}{T_4 I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000667	.000200	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
10,000	40,000	.001367	.000200	0.	.....	
10,250	41,000	.001433	.000066	.....	.....	Elastic limit.
10,500	42,000	.001767	.000334	.....	.....	
		.002167	.000400	.....	.....	
10,750	43,000	.002767	.000600	.....	.....	
11,000	44,000	.005033	.002266	.....	.....	
11,250	45,000	.006333	.001300	.....	.....	
11,500	46,000	.007867	.001534	.....	.....	
11,750	47,000	.008400	.000533	.....	.....	
12,000	48,000	.010000	.001600	.....	.....	
12,250	49,000	.011000	.001000	.....	.....	
12,500	50,000	.012067	.001067	.....	.....	
13,000	52,000	.014333	.002266	.....	.....	
13,500	54,000	.017233	.002900	.....	.....	
14,000	56,000	.019867	.002634	.....	.....	
14,500	58,000	.022667	.002800	.....	.....	
15,000	60,000	.025733	.003066	.....	.....	
15,500	62,000	.029500	.003767	.....	.....	
16,000	64,000	.033000	.003500	.....	.....	
16,500	66,000	.037333	.004333	.....	.....	
17,000	68,000	.042667	.005334	.....	.....	
17,500	70,000	.048833	.006166	.....	.....	
18,000	72,000	.056200	.007367	.....	.....	
18,500	74,000	.066167	.009967	.....	.....	
19,000	76,000	.0833	.017133	.....	.....	
19,500	78,000	.1067	.0234	.....	.....	
19,660	78,640	.1500	.0433	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	78,640
Elastic limit per square inch of original section	do...	41,000
Elongation per inch after rupture	inch..	0.2233
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.134
Reduction in area after rupture, per centum of original section.....		41.9
Position of rupture.....	1 inch from neck	
Character of broken surface.....	granular; dull spot at circumference	
Diameter, ".10 from point of rupture.....		".41
Elongation of inch sections.....		".38*, ".17, ".12

No. 2372.

Marks, $\frac{8 T_{49}}{M T_5 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000633	.000200	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001167	.000200	0.	.....	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001267	.000067			Elastic limit.
9,500	38,000	.007733	.006466	.....	.....	
9,750	39,000	.008333	.000600	.....	.....	
10,000	40,000	.009333	.001000	.....	.....	
10,250	41,000	.010333	.001000	.....	.....	
10,500	42,000	.011500	.001167	.....	.....	
10,750	43,000	.012333	.000833	.....	.....	
11,000	44,000	.013633	.001300	.....	.....	
11,250	45,000	.014667	.001034	.....	.....	
11,500	46,000	.016067	.001400	.....	.....	
11,750	47,000	.017167	.001100	.....	.....	
12,000	48,000	.018667	.001500	.....	.....	
12,250	49,000	.019667	.001000	.....	.....	
12,500	50,000	.021167	.001500	.....	.....	
13,000	52,000	.024000	.002833	.....	.....	
13,500	54,000	.027667	.003667	.....	.....	
14,000	56,000	.031333	.003666	.....	.....	
14,500	58,000	.035333	.004000	.....	.....	
15,000	60,000	.040333	.005000	.....	.....	
15,500	62,000	.045667	.005334	.....	.....	
16,000	64,000	.052333	.006666	.....	.....	
16,500	66,000	.061333	.009000	.....	.....	
17,000	68,000	.0733	.011967	.....	.....	
17,500	70,000	.0867	.0134	.....	.....	
18,000	72,000	.1067	.0200	.....	.....	
18,480	73,920	.1733	.0666			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	73,920
Elastic limit per square inch of original section.....	do...	37,000
Elongation per inch after rupture.....	inch..	0.2167
Elongation per inch under strain at elastic limit.....	do ..	.001267
Reduction in diameter at point of rupture.....	do...	.084
Reduction in area after rupture, per centum of original section.....		27.6
Position of rupture	".83 from neck	
Character of broken surface, granular, 80 per centum; dull silky, 20 per centum; opened cracks in surface of stem.		
Elongation of inch sections.....	".15, ".20, ".30*	

No. 2373.

Marks, $\frac{8 T_{49}}{M T_6 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.		Initial load.
1,250	5,000	.000100	.000100	0.		
2,500	10,000	.000267	.000167	0.		
3,750	15,000	.000400	.000133	0.		
5,000	20,000	.000533	.000133	0.		
6,250	25,000	.000700	.000167	0.		
7,500	30,000	.000867	.000167	0.		
8,750	35,000	.001033	.000166	0.		
9,000	36,000	.001067	.000034			
9,250	37,000	.001100	.000033			
9,500	38,000	.001133	.000033			
9,750	39,000	.001200	.000067			
10,000	40,000	.001267	.000067	.000067	.000067	Elastic limit.
10,250	41,000	.002600	.001333			
10,500	42,000	.004000	.001400			
10,750	43,000	.005000	.001000			
11,000	44,000	.006333	.001333			
11,250	45,000	.007333	.001000			
11,500	46,000	.008333	.001000			
11,750	47,000	.009500	.001167			
12,000	48,000	.010500	.001000			
12,250	49,000	.011667	.001167			
12,500	50,000	.012833	.001166			
13,000	52,000	.014833	.002000			
13,500	54,000	.017333	.002500			
14,000	56,000	.019667	.002334			
14,500	58,000	.022833	.003166			
15,000	60,000	.026000	.003167			
15,500	62,000	.029333	.003333			
16,000	64,000	.033000	.003667			
16,500	66,000	.037333	.004333			
17,000	68,000	.042333	.005000			
17,500	70,000	.048333	.006000			
18,000	72,000	.056667	.008334			
18,500	74,000	.0667	.010033			
19,000	76,000	.0833	.0166			
19,500	78,000	.1067	.0234			
19,720	78,880	.1600	.0533			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	78,880
Elastic limit per square inch of original section.....	do...	40,000
Elongation per inch after rupture.....	inch..	0.2067
Elongation per inch under strain at elastic limit.....	do...	.001267
Reduction in diameter at point of rupture.....	do...	.094
Reduction in area after rupture, per centum of original section		30.6
Position of rupture.....		1".10 from neck
Character of broken surface, granular; dull spot at circumference; opened small cracks in surface of stem.		
Elongation of inch sections		".24, ".22, ".16

No. 2175.

Marks, ^{8 T₅₀}_{B T₁ I}
Diameter, ".564.
Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000900	.000133	0.	.....	
8,750	35,000	.001033	.000133	0.	.....	
9,000	36,000	.001100	.000067	.....	.....	
9,250	37,000	.001133	.000033			Elastic limit.
9,500	38,000	.001167	.000034	.....	.....	
9,750	39,000	.001233	.000066	.....	.....	
10,000	40,000	.002600	.001367	.....	.....	
10,250	41,000	.003833	.001233	.....	.....	
10,500	42,000	.005700	.001867	.....	.....	
10,750	43,000	.006833	.001133	.....	.....	
11,000	44,000	.008167	.001334	.....	.....	
11,250	45,000	.009333	.001166	.....	.....	
11,500	46,000	.010500	.001167	.....	.....	
11,750	47,000	.011500	.001000	.....	.....	
12,000	48,000	.012833	.001333	.....	.....	
12,250	49,000	.014000	.001167	.....	.....	
12,500	50,000	.015333	.001333	.....	.....	
12,750	51,000	.016700	.001367	.....	.....	
13,000	52,000	.018067	.001367			Tensile strength.
13,250	53,000	.020000	.001933	.....	.....	
13,500	54,000	.021667	.001667	.....	.....	
13,750	55,000	.023333	.001666	.....	.....	
14,000	56,000	.025333	.002000	.....	.....	
14,250	57,000	.026667	.001334	.....	.....	
14,500	58,000	.028333	.001666	.....	.....	
14,750	59,000	.030333	.002000	.....	.....	
15,000	60,000	.032367	.002034	.....	.....	
15,500	62,000	.036833	.004466	.....	.....	
16,000	64,000	.042167	.005334	.....	.....	
16,500	66,000	.049000	.006833	.....	.....	
17,000	68,000	.057333	.008333	.....	.....	
17,500	70,000	.0667	.009367	.....	.....	
18,000	72,000	.0867	.0200	.....	.....	
18,500	74,000	.1233	.0366	.....	.....	
18,550	74,200	.1500	.0267	.....	.....	

General summary.

Specific gravity	inch..	7.8584
Hardness .....	.....	12.72
Tensile strength per square inch of original section	pounds..	74,200
Elastic limit per square inch of original section	do...	39,000
Elongation per inch after rupture	inch..	0.2367
Elongation per inch under strain at elastic limit	do...	.001233
Reduction in diameter at point of rupture	do...	.164
Reduction in area after rupture, per centum of original section .....	.....	49.7
Position of rupture	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface .....	.....	silky
Elongation of inch sections .....	.....	".37, ".22, ".12

No. 2176.

Marks, $\frac{8}{B} T_{50}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	-----	
2,500	10,000	.000267	.000134	0.	-----	
3,750	15,000	.000400	.000133	0.	-----	
5,000	20,000	.000533	.000133	0.	-----	
6,250	25,000	.000700	.000167	0.	-----	
7,500	30,000	.000867	.000167	0.	-----	
8,750	35,000	.001033	.000166	0.	-----	
9,000	36,000	.001067	.000034	-----	-----	
9,250	37,000	.001200	.000133	-----	-----	Elastic limit.
9,500	38,000	.001233	.000033	-----	-----	
9,750	39,000	.001267	.000034	-----	-----	
10,000	40,000	.002600	.001333	-----	-----	
10,250	41,000	.004667	.002067	-----	-----	
10,500	42,000	.006233	.001566	-----	-----	
10,750	43,000	.007467	.001234	-----	-----	
11,000	44,000	.008667	.001200	-----	-----	
11,250	45,000	.009567	.000900	-----	-----	
11,500	46,000	.010733	.001166	-----	-----	
11,750	47,000	.012000	.001267	-----	-----	
12,000	48,000	.013200	.001200	-----	-----	
12,250	49,000	.014333	.001133	-----	-----	
12,500	50,000	.015500	.001167	-----	-----	
12,750	51,000	.016667	.001167	-----	-----	
13,000	52,000	.018000	.001333	-----	-----	
13,250	53,000	.019167	.001167	-----	-----	
13,500	54,000	.020667	.001500	-----	-----	
13,750	55,000	.022000	.001333	-----	-----	
14,000	56,000	.023667	.001667	-----	-----	
14,250	57,000	.025333	.001666	-----	-----	
14,500	58,000	.027000	.001667	-----	-----	
14,750	59,000	.029500	.002500	-----	-----	
15,000	60,000	.031167	.001667	-----	-----	
15,500	62,000	.035333	.004166	-----	-----	
16,000	64,000	.040000	.004667	-----	-----	
16,500	66,000	.045667	.005667	-----	-----	
17,000	68,000	.052500	.006833	-----	-----	
17,500	70,000	.060333	.007833	-----	-----	
18,000	72,000	.063333	.003000	-----	-----	
18,500	74,000	.0900	.026667	-----	-----	
19,000	76,000	.1333	.0433	-----	-----	Tensile strength.
19,050	76,200	.1567	.0234	-----	-----	

General summary.

Tensile strength per square inch of original section.....pounds.. 76,200
 Elastic limit per square inch of original sectiondo... 39,000
 Elongation per inch after rupture.....inch... 0.2267
 Elongation per inch under strain at elastic limit.....do... .001267
 Reduction in diameter at point of rupture.....do... .114
 Reduction in area after rupture, per centum of original section 36.4
 Position of rupture..... $\frac{1}{4}$ inch from middle of stem
 Character of broken surfacegranular; dull spot at circumference
 Elongation of inch sections.....".15, ".36, ".17

No. 2177.

Marks, $\frac{8}{B} \frac{T_{50}}{T_3} M$
 Diameter, $\frac{11}{16}$.565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000467	.000200	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.001033	.000233	0.	.....	
8,500	34,000	.001167	.000134			Elastic limit.
8,750	35,000	.003000	.001833	.....	.....	
9,000	36,000	.006400	.003400	.....	.....	
9,250	37,000	.007667	.001267	.....	.....	
9,500	38,000	.009000	.001333	.....	.....	
9,750	39,000	.010400	.001400	.....	.....	
10,000	40,000	.011333	.000933	.....	.....	
10,250	41,000	.012333	.001000	.....	.....	
10,500	42,000	.013733	.001400	.....	.....	
10,750	43,000	.015067	.001334	.....	.....	
11,000	44,000	.016000	.000933	.....	.....	
11,250	45,000	.017233	.001233	.....	.....	
11,500	46,000	.018700	.001467	.....	.....	
11,750	47,000	.020033	.001333	.....	.....	
12,000	48,000	.021333	.001300	.....	.....	
12,250	49,000	.022667	.001334	.....	.....	
12,500	50,000	.025000	.002333	.....	.....	
13,000	52,000	.028000	.003000	.....	.....	
13,500	54,000	.032667	.004667	.....	.....	
14,000	56,000	.036667	.004000	.....	.....	
14,500	58,000	.041833	.005166	.....	.....	
15,000	60,000	.047333	.005500	.....	.....	
15,500	62,000	.054500	.007167	.....	.....	
16,000	64,000	.062333	.007833	.....	.....	
16,500	66,000	.0733	.010967	.....	.....	
17,000	68,000	.0933	.0200	.....	.....	
17,500	70,000	.1133	.0200	.....	.....	
17,870	71,480	.1767	.0634			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	71,480
Elastic limit per square inch of original section.....	do...	34,000
Elongation per inch after rupture	inch..	0.2667
Elongation per inch under strain at elastic limit.....	do...	.001167
Reduction in diameter at point of rupture	do...	.115
Reduction in area after rupture, per centum of original section.....		36.4
Position of rupture.....	$\frac{3}{8}$ inch from middle of stem	
Character of broken surface.....	granular, 40 per centum; silky, 60 per centum	
Elongation of inch sections.....	".21, ".41, ".18	

No. 2178.

Marks, $\frac{8}{M T_1 I} T_{50}$
Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000800	.000200	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001100	.000133	0.	.....	
9,000	36,000	.001133	.000033	.....	.....	Elastic limit.
9,250	37,000	.001233	.000100	.....	.....	
9,500	38,000	.004000	.002767	.....	.....	
9,750	39,000	.007667	.003667	.....	.....	
10,000	40,000	.008667	.001000	.....	.....	
10,250	41,000	.009833	.001166	.....	.....	
10,500	42,000	.010667	.000834	.....	.....	
10,750	43,000	.011667	.001000	.....	.....	
11,000	44,000	.012833	.001166	.....	.....	
11,250	45,000	.013967	.001134	.....	.....	
11,500	46,000	.015400	.001433	.....	.....	
11,750	47,000	.016667	.001267	.....	.....	
12,000	48,000	.017833	.001166	.....	.....	
12,250	49,000	.018800	.000967	.....	.....	
12,500	50,000	.020133	.001333	.....	.....	
13,000	52,000	.022833	.002700	.....	.....	
13,500	54,000	.026000	.003167	.....	.....	
14,000	56,000	.029333	.003333	.....	.....	
14,500	58,000	.033000	.003667	.....	.....	
15,000	60,000	.036667	.003667	.....	.....	
15,500	62,000	.041600	.004933	.....	.....	
16,000	64,000	.046667	.005067	.....	.....	
16,500	66,000	.053333	.006666	.....	.....	
17,000	68,000	.060667	.007334	.....	.....	
17,500	70,000	.068333	.007666	.....	.....	
18,000	72,000	.0867	.018367	.....	.....	
18,500	74,000	.1033	.0166	.....	.....	
19,000	76,000	.1467	.0434	.....	.....	
19,010	76,040	.1667	.0200	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	76,040
Elastic limit per square inch of original section	do...	36,000
Elongation per inch after rupture	inch..	0.1933
Elongation per inch under strain at elastic limit	do...	.001133
Reduction in diameter at point of rupture	do...	.074
Reduction in area after rupture, per centum of original section		24.6
Position of rupture	$\frac{3}{8}$ inch from middle of stem	
Character of broken surface	granular; dull eccentric spot	
Elongation of inch sections	".20, ".22*, ".16	

H. Ex. 31—58

No. 2179.

Marks, $\frac{8}{M} T_{50}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000467	.000200	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033	.....	.....	
9,500	38,000	.001233	.000033	.....	.....	Elastic limit.
9,750	39,000	.001367	.000134	.....	.....	
10,000	40,000	.010000	.008633	.....	.....	
10,250	41,000	.010667	.000667	.....	.....	
10,500	42,000	.011600	.000933	.....	.....	
10,750	43,000	.012667	.001067	.....	.....	
11,000	44,000	.013700	.001033	.....	.....	
11,250	45,000	.014600	.000900	.....	.....	
11,500	46,000	.015733	.001133	.....	.....	
11,750	47,000	.016733	.001000	.....	.....	
12,000	48,000	.018267	.001534	.....	.....	
12,250	49,000	.019333	.001066	.....	.....	
12,500	50,000	.020500	.001167	.....	.....	
13,000	52,000	.023167	.002667	.....	.....	
13,500	54,000	.025833	.002666	.....	.....	
14,000	56,000	.029000	.003167	.....	.....	
14,500	58,000	.032333	.003333	.....	.....	
15,000	60,000	.036667	.004334	.....	.....	
15,500	62,000	.041167	.004500	.....	.....	
16,000	64,000	.045667	.004500	.....	.....	
16,500	66,000	.051000	.005333	.....	.....	
17,000	68,000	.057067	.006067	.....	.....	
17,500	70,000	.0667	.009633	.....	.....	
18,000	72,000	.0800	.0133	.....	.....	
18,500	74,000	.0967	.0167	.....	.....	
19,000	76,000	.1133	.0166	.....	.....	
19,420	77,680	.1700	.0567	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	77,680
Elastic limit per square inch of original section.....	do...	38,000
Elongation per inch after rupture.....	inch..	0.2333
Elongation per inch under strain at elastic limit.....	do...	.001233
Reduction in diameter at point of rupture.....	do...	.114
Reduction in area after rupture, per centum of original section.....		36.4
Position of rupture.....	".20 from middle of stem	
Character of broken surface.....	silky; slightly granular	
Elongation of inch sections.....	".18, ".35*, ".17	

No. 2180.

Marks, $\frac{8}{M} T_{50}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001067	.000134	0.	.....	
9,000	36,000	.001100	.000033	.....	.....	
9,250	37,000	.001133	.000033	.....	.....	
9,500	38,000	.001167	.000034	.....	.....	
9,750	39,000	.001200	.000033	.....	.....	
10,000	40,000	.001233	.000033	.....	.....	
10,250	41,000	.001267	.000034	.....	.....	
10,500	42,000	.001333	.000066			Elastic limit.
10,750	43,000	.001400	.000067	.....	.....	
11,000	44,000	.012600	.001200	.....	.....	
11,250	45,000	.013000	.000400	.....	.....	
11,500	46,000	.013733	.000733	.....	.....	
11,750	47,000	.014667	.000934	.....	.....	
12,000	48,000	.015667	.001000	.....	.....	
12,250	49,000	.016667	.001000	.....	.....	
12,500	50,000	.018000	.001333	.....	.....	
13,000	52,000	.020000	.002000	.....	.....	
13,500	54,000	.022667	.002667	.....	.....	
14,000	56,000	.025333	.002666	.....	.....	
14,500	58,000	.028067	.002734	.....	.....	
15,000	60,000	.031167	.003100	.....	.....	
15,500	62,000	.035000	.003833	.....	.....	
16,000	64,000	.039167	.004167			Tensile strength.
16,500	66,000	.043333	.004166	.....	.....	
17,000	68,000	.048667	.005334	.....	.....	
17,500	70,000	.054000	.005333	.....	.....	
18,000	72,000	.061333	.007333	.....	.....	
18,500	74,000	.0700	.008667	.....	.....	
19,000	76,000	.0800	.0100	.....	.....	
19,500	78,000	.1000	.0200	.....	.....	
20,000	80,000	.1333	.0333	.....	.....	
20,060	80,240	.1433	.0100	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	80,240
Elastic limit per square inch of original section	do...	43,000
Elongation per inch after rupture	inch..	0.1567
Elongation per inch under strain at elastic limit	do...	.001400
Reduction in diameter at point of rupture	do ..	.054
Reduction in area after rupture, per centum of original section		18.3
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface	granular, 50 per centum; dull flaky, 50 per centum	
Elongation of inch sections	" .17*, ".14, ".16	

[Additional specimens.]

No. 2534.

Marks, $\frac{8 T_{50}}{B T_4 I}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000400	.000233	0.	.....	
3,750	15,000	.000567	.000167	0.	.....	
5,000	20,000	.000767	.000200	0.	.....	
6,250	25,000	.000933	.000166	0.	.....	
7,500	30,000	.001067	.000134	0.	.....	
8,750	35,000	.001267	.000200	.....	.....	Elastic limit.
9,000	36,000	.001400	.000133	.....	.....	
9,250	37,000	.001500	.000106	.....	.....	
9,500	38,000	.008000	.006500	.....	.....	
9,750	39,000	.009167	.001167	.....	.....	
10,000	40,000	.010033	.000866	.....	.....	
10,500	42,000	.012833	.002800	.....	.....	
11,000	44,000	.015333	.002500	.....	.....	
11,500	46,000	.017667	.002334	.....	.....	
12,000	48,000	.020667	.003000	.....	.....	
12,500	50,000	.023333	.002666	.....	.....	
13,000	52,000	.026367	.003034	.....	.....	
13,500	54,000	.030000	.003633	.....	.....	
14,000	56,000	.034500	.004500	.....	.....	
14,500	58,000	.038667	.004167	.....	.....	
15,000	60,000	.0433	.004633	.....	.....	
15,500	62,000	.0500	.0067	.....	.....	
16,000	64,000	.0600	.0100	.....	.....	
16,500	66,000	.0700	.0100	.....	.....	
17,000	68,000	.0767	.0067	.....	.....	
17,500	70,000	.0967	.0200	.....	.....	
18,000	72,000	.1367	.0400	.....	.....	
18,160	72,640	.1733	.0366	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	72,640
Elastic limit per square inch of original section.....	do...	35,000
Elongation per inch after rupture.....	inch..	0.2233
Elongation per inch under strain at elastic limit.....	do...	.001267
Reduction in diameter at point of rupture.....	do...	.065
Reduction in area after rupture, per centum of original section.....		21.4
Position of rupture.....		".65 from neck
Character of broken surface.....	granular; opened cracks in surface of stem	
Elongation of inch sections.....		".19, ".25, ".23"

No. 2535.

Marks, $\frac{8}{B} \frac{T_{50}}{T_{50}}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000633	.000200	0.	.....	
6,250	25,000	.000767	.000134	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	.....	.....	
9,000	36,000	.001167	.000067	.....	.....	
9,250	37,000	.001233	.000066			Elastic limit.
9,500	38,000	.001300	.000067	.....	.....	
9,750	39,000	.001367	.004867	.....	.....	
10,000	40,000	.001400	.002233	.....	.....	
10,500	42,000	.010667	.002267	.....	.....	
11,000	44,000	.012700	.002033	.....	.....	
11,500	46,000	.015200	.002500	.....	.....	
12,000	48,000	.017833	.002633	.....	.....	
12,500	50,000	.020500	.002667	.....	.....	
13,000	52,000	.024333	.003833	.....	.....	
13,500	54,000	.027667	.003333	.....	.....	
14,000	56,000	.031067	.003400	.....	.....	
14,500	58,000	.036667	.005600	.....	.....	
15,000	60,000	.0400	.003333	.....	.....	
15,500	62,000	.0467	.0067	.....	.....	
16,000	64,000	.0533	.0066	.....	.....	
16,500	66,000	.0600	.0067	.....	.....	
17,000	68,000	.0700	.0100	.....	.....	
17,500	70,000	.0900	.0200	.....	.....	
18,000	72,000	.1067	.0167			Tensile strength.
18,390	73,560	.1767	.0700	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	73,560
Elastic limit per square inch of original section	do...	38,000
Elongation per inch after rupture	inch..	0.2900
Elongation per inch under strain at elastic limit	do...	.001360
Reduction in diameter at point of rupture	do...	.194
Reduction in area after rupture, per centum of original section		57.0
Position of rupture	1".70 from neck	
Character of broken surface	silky	
Elongation of inch sections	".21, ".47*, ".19	

No. 2536.

Marks, $\frac{8}{B} T_{50} M$
Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000367	.000200	0.	.....	
3,750	15,000	.000500	.000133	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001033	.000200	0.	.....	
8,750	35,000	.001233	.000200			Elastic limit.
9,000	36,000	.001367	.000134	.....	.....	
9,250	37,000	.008367	.007000	.....	.....	
9,500	38,000	.009167	.000800	.....	.....	
9,750	39,000	.009900	.000733	.....	.....	
10,000	40,000	.011033	.001133	.....	.....	
10,500	42,000	.013167	.002134	.....	.....	
11,000	44,000	.015667	.002500	.....	.....	
11,500	46,000	.018000	.002333	.....	.....	
12,000	48,000	.020400	.002400	.....	.....	
12,500	50,000	.023167	.002767	.....	.....	
13,000	52,000	.026167	.003000	.....	.....	
13,500	54,000	.029700	.003533	.....	.....	
14,000	56,000	.033567	.003867	.....	.....	
14,500	58,000	.0367	.003133	.....	.....	
15,000	60,000	.0400	.0033	.....	.....	
15,500	62,000	.0467	.0067	.....	.....	
16,000	64,000	.0567	.0100	.....	.....	
16,500	66,000	.0633	.0066	.....	.....	
17,000	68,000	.0700	.0067	.....	.....	
17,500	70,000	.0833	.0133	.....	.....	
18,000	72,000	.1033	.0200	.....	.....	
18,500	74,000	.1300	.0267	.....	.....	
18,720	74,880	.1833	.0533			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	74,880
Elastic limit per square inch of original section.....	do..	35,000
Elongation per inch after rupture.....	inch..	0.2333
Elongation per inch under strain at elastic limit.....	do..	.001233
Reduction in diameter at point of rupture.....	do..	.104
Reduction in area after rupture, per centum of original section.....		33.5
Position of rupture.....	1".70 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".19, ".34*, ".17	

No. 2537.

Marks, $\frac{8}{M} \frac{T_{50}}{T_{41}}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	-----	
2,500	10,000	.000300	.000200	0.	-----	
3,750	15,000	.000433	.000133	0.	-----	
5,000	20,000	.000600	.000167	0.	-----	
6,250	25,000	.000767	.000167	0.	-----	
7,500	30,000	.000933	.000166	0.	-----	
8,750	35,000	.001100	.000167	-----	-----	
9,000	36,000	.001167	.000067	-----	-----	Elastic limit.
9,250	37,000	.001200	.000033	-----	-----	
9,500	38,000	.001267	.000067	-----	-----	
9,750	39,000	.010333	.009066	-----	-----	
10,000	40,000	.011033	.000700	-----	-----	
10,500	42,000	.012533	.001500	-----	-----	
11,000	44,000	.014667	.002134	-----	-----	
11,500	46,000	.016833	.002166	-----	-----	
12,000	48,000	.019000	.002167	-----	-----	
12,500	50,000	.021667	.002667	-----	-----	
13,000	52,000	.025000	.003333	-----	-----	
13,500	54,000	.028667	.003667	-----	-----	
14,000	56,000	.031333	.002666	-----	-----	
14,500	58,000	.0333	.001967	-----	-----	
15,000	60,000	.0400	.0067	-----	-----	
15,500	62,000	.0433	.0033	-----	-----	Tensile strength.
16,000	64,000	.0500	.0067	-----	-----	
16,500	66,000	.0533	.9033	-----	-----	
17,000	68,000	.0633	.0100	-----	-----	
17,500	70,000	.0700	.0067	-----	-----	
18,000	72,000	.0867	.0167	-----	-----	
18,500	74,000	.1000	.0133	-----	-----	
19,000	76,000	.1367	.0367	-----	-----	
19,100	76,400	.1767	.0400	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	76,403
Elastic limit per square inch of original section.....	do...	38,000
Elongation per inch after rupture.....	inch..	0.2033
Elongation per inch under strain at elastic limit.....	do...	.001267
Reduction in diameter at point of rupture.....	do...	.105
Reduction in area after rupture, per centum of original section.....		33.5
Position of rupture.....		".65 from neck
Character of broken surface.....	granular, 60 per centum; silky, 40 per centum	
Elongation of inch sections.....		".14, ".17, ".30*

No. 2538.

Marks, $M \frac{8 T_{50}}{T_5 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000233	.000100	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000767	.000200	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001033	.000100	.....	.....	
9,000	36,000	.001067	.000034	.....	.....	
9,250	37,000	.001100	.000033	.....	.....	
9,500	38,000	.001167	.000067	.....	.....	Elastic limit.
9,750	39,000	.001267	.000100	.....	.....	
10,000	40,000	.006333	.005066	.....	.....	
10,500	42,000	.010833	.004500	.....	.....	
11,000	44,000	.012333	.001500	.....	.....	
11,500	46,000	.014400	.002067	.....	.....	
12,000	48,000	.017000	.002600	.....	.....	
12,500	50,000	.019167	.002167	.....	.....	
13,000	52,000	.021667	.002500	.....	.....	
13,500	54,000	.024500	.002833	.....	.....	
14,000	56,000	.028000	.003500	.....	.....	
14,500	58,000	.031000	.003000	.....	.....	
15,000	60,000	.035167	.004167	.....	.....	
15,500	62,000	.0367	.001533	.....	.....	
16,000	64,000	.0433	.0066	.....	.....	
16,500	66,000	.0533	.0100	.....	.....	
17,000	68,000	.0600	.0067	.....	.....	
17,500	70,000	.0667	.0067	.....	.....	
18,000	72,000	.0800	.0133	.....	.....	
18,500	74,000	.0967	.0167	.....	.....	
19,000	76,000	.1267	.0300	.....	.....	
19,150	76,600	.1667	.0400	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	76,600
Elastic limit per square inch of original section	do...	38,000
Elongation per inch after rupture	inch..	0.2567
Elongation per inch under strain at elastic limit	do ..	.001167
Reduction in diameter at point of rupture	do...	.154
Reduction in area after rupture, per centum of original section		47.2
Position of rupture	1".28 from neck	
Character of broken surface	silky, with slight granulation	
Elongation of inch sections	".28*, ".34*, ".15	

No. 2539.

Marks, $\frac{8}{M} T_{50}$

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000700	.000133	0.	.....	
7,500	30,000	.000867	.000167	0.	.....	
8,750	35,000	.001067	.000200	.....	.....	
9,000	36,000	.001100	.000033	.....	.....	
9,250	37,000	.001133	.000033			Elastic limit.
9,500	38,000	.007933	.006800	.....	.....	
9,750	39,000	.009700	.001767	.....	.....	
10,000	40,000	.010367	.000667	.....	.....	
10,500	42,000	.012500	.002133	.....	.....	
11,000	44,000	.015133	.002633	.....	.....	
11,500	46,000	.017067	.001934	.....	.....	
12,000	48,000	.019700	.002633	.....	.....	
12,500	50,000	.022667	.002967	.....	.....	
13,000	52,000	.025667	.003000	.....	.....	
13,500	54,000	.029333	.003666	.....	.....	
14,000	56,000	.033000	.003667	.....	.....	
14,500	58,000	.037367	.004367	.....	.....	
15,000	60,000	.0433	.005933	.....	.....	
15,500	62,000	.0500	.0067	.....	.....	
16,000	64,000	.0567	.0067	.....	.....	
16,500	66,000	.0633	.0066	.....	.....	
17,000	68,000	.0733	.0100	.....	.....	
17,500	70,000	.0933	.0200	.....	.....	
18,000	72,000	.1133	.0200			Tensile strength.
18,360	73,440	.1733	.0600	.....	.....	

General summary.

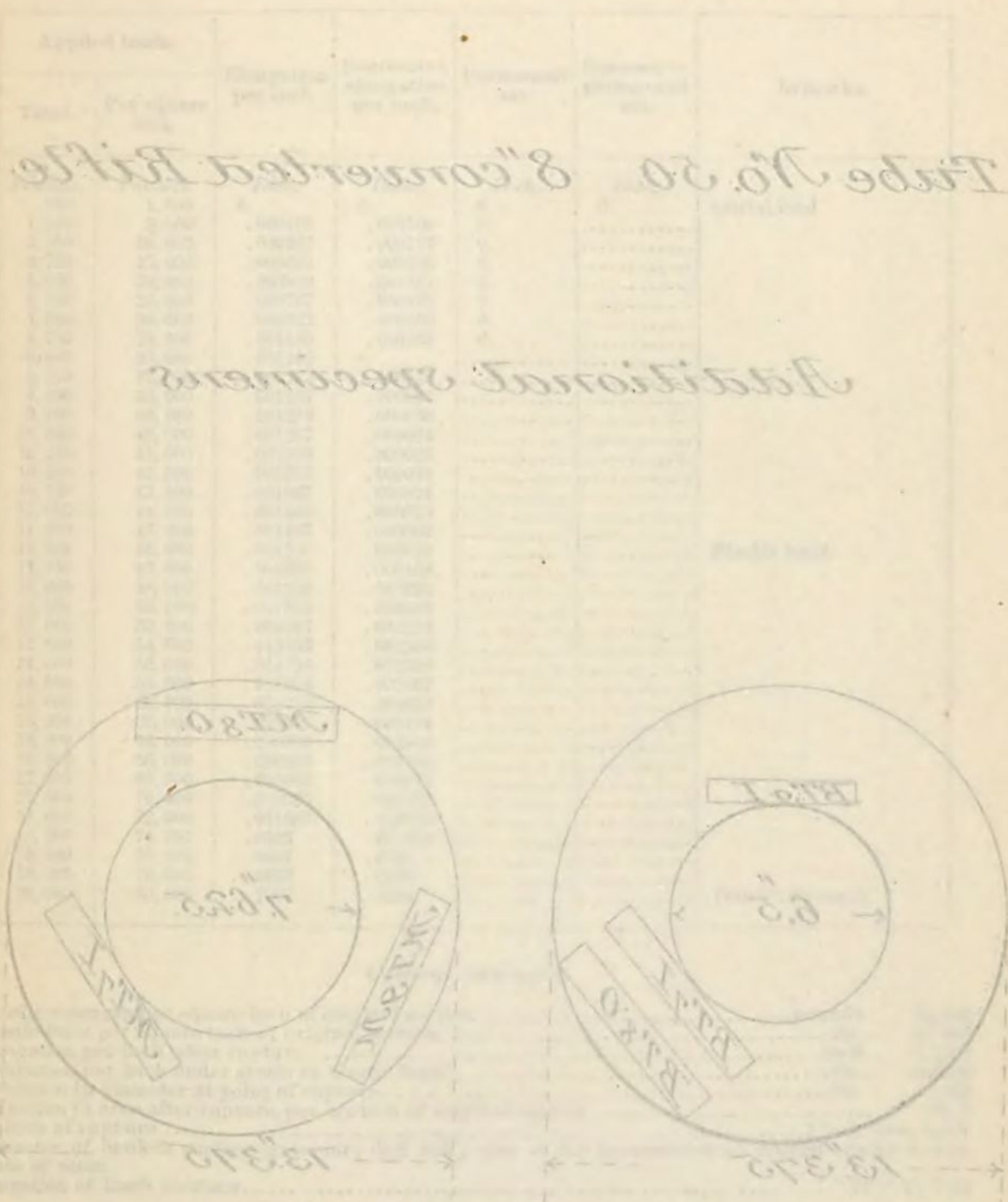
Tensile strength per square inch of original sectionpounds.. 73,440
 Elastic limit per square inch of original sectiondo... 37,000
 Elongation per inch after rupture.....inch.. 0.2367
 Elongation per inch under strain at elastic limit.....do... .001133
 Reduction in diameter at point of rupture.....do... .105
 Reduction in area after rupture, per centum of original section 33.5
 Position of rupture 1".65 from neck
 Character of broken surface, granular; dull flaky spot at circumference; opened cracks in surface of stem.
 Diameter .1 inch from point of rupture ".45
 Elongation of inch sections..... ".21, ".34*, ".16

Fig. 229.

Marks, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100.

Diameter, 1/4 in.

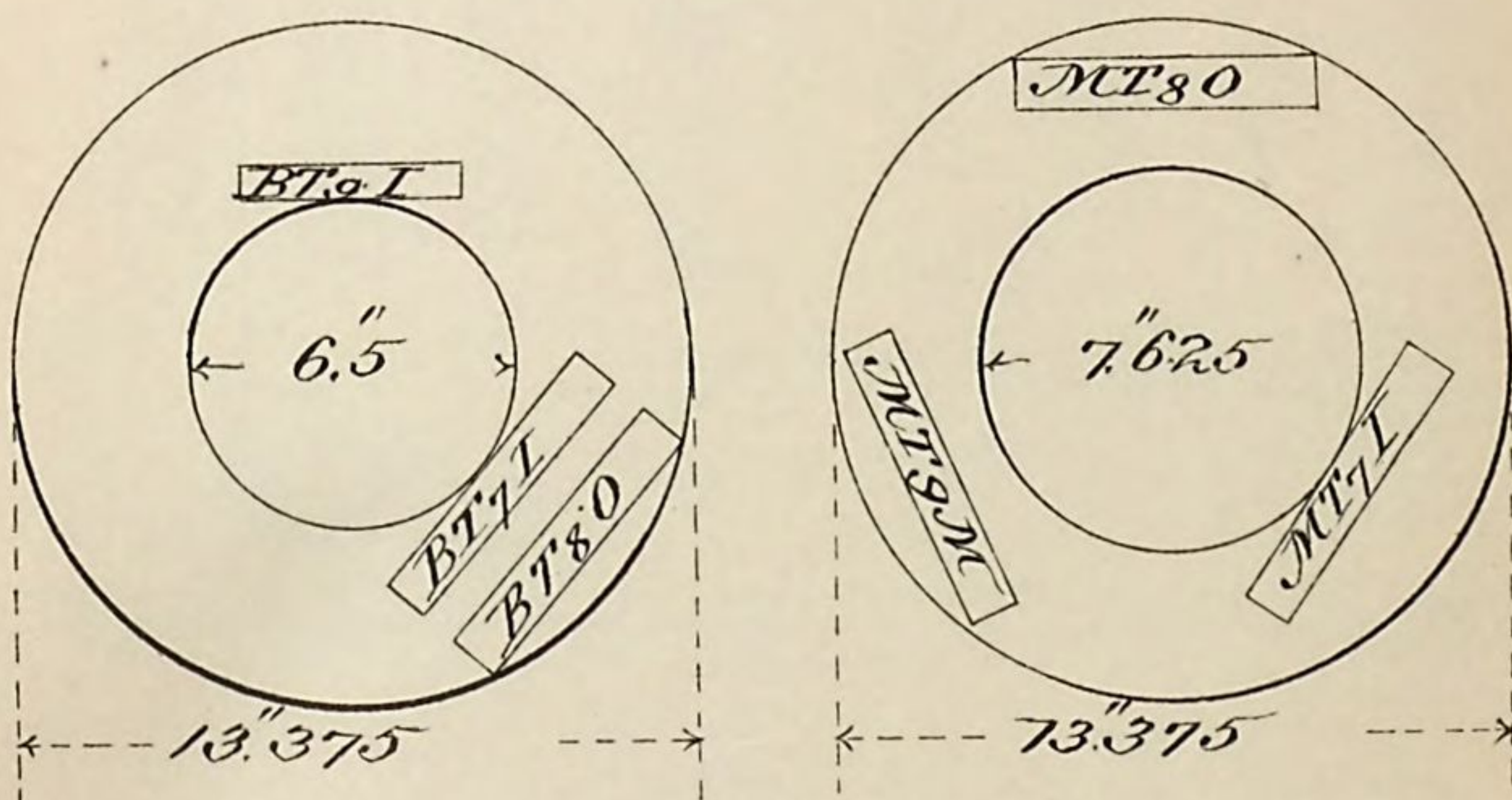
Sectional area, 25 square inch.



H E x 3 1 4 5

Tube No. 50 8" converted Rifle

Additional specimens



No. 2729.

Marks, $\frac{8}{B} \frac{Cn}{T} \frac{R_{50}}{I} T$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load
1,250	5,000	.000100	.000100	0.	-----	
2,500	10,000	.000267	.000167	0.	-----	
3,750	15,000	.000433	.000166	0.	-----	
5,000	20,000	.000600	.000167	0.	-----	
6,250	25,000	.000767	.000167	0.	-----	
7,500	30,000	.000933	.000166	0.	-----	
8,750	35,000	.001100	.000167	0.	-----	
9,000	36,000	.001100	0.	-----	-----	
9,250	37,000	.001133	.000033	-----	-----	Elastic limit.
9,500	38,000	.001167	.000034	-----	-----	
9,750	39,000	.001233	.000066	-----	-----	
10,000	40,000	.001267	.000034	-----	-----	
10,250	41,000	.001300	.000033	-----	-----	
10,500	42,000	.001333	.000033	-----	-----	
10,750	43,000	.001367	.000034	-----	-----	
11,000	44,000	.001400	.000033	-----	-----	
11,250	45,000	.001467	.000067	-----	-----	
11,500	46,000	.001500	.000033	-----	-----	Tensile strength.
11,750	47,000	.001600	.000100	-----	-----	
12,000	48,000	.004233	.002633	-----	-----	
12,500	50,000	.007533	.003300	-----	-----	
13,000	52,000	.009867	.002334	-----	-----	
13,500	54,000	.012433	.002566	-----	-----	
14,000	56,000	.014733	.002300	-----	-----	
14,500	58,000	.017600	.002867	-----	-----	
15,000	60,000	.020233	.002633	-----	-----	
15,500	62,000	.023367	.003134	-----	-----	
16,000	64,000	.026833	.003466	-----	-----	
16,500	66,000	.030933	.004100	-----	-----	
17,000	68,000	.035000	.004067	-----	-----	
17,500	70,000	.038333	.003333	-----	-----	
18,000	72,000	.041667	.003334	-----	-----	
18,500	74,000	.0533	.011633	-----	-----	
19,000	76,000	.0667	.0134	-----	-----	
19,500	78,000	.0833	.0166	-----	-----	
20,000	80,000	.1267	.0434	-----	-----	

General summary.

Tensile strength per square inch of original section.....	pounds..	80,000
Elastic limit per square inch of original section.....	do...	46,000
Elongation per inch after rupture.....	inch..	0.1300
Elongation per inch under strain at elastic limit.....	do...	.001500
Reduction in diameter at point of rupture.....	do...	.064
Reduction in area after rupture, per centum of original section.....		21.4
Position of rupture.....		1 inch from neck
Character of broken surface, granular; dull flaky spot at the circumference; opened cracks in surface of stem.		
Elongation of inch sections.....		".11, ".13, ".15

No. 2730.

Marks, $\frac{8}{B} \frac{Cn}{T_8} \frac{R_{50}}{O} T$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001233	.000066	.....	.....	
9,500	38,000	.001267	.000034	.....	.....	
9,750	39,000	.001300	.000033	.....	.....	
10,000	40,000	.001333	.000033	.....	.....	
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.001400	.000033	.....	.....	
10,750	43,000	.001433	.000033	.....	.....	
11,000	44,000	.001467	.000034	.....	.....	
11,250	45,000	.001467	0.	.....	.....	
11,500	46,000	.001567	.000100	.....	.....	
11,750	47,000	.001633	.000066	.....	.....	
12,000	48,000	.001667	.000034	.....	.....	
12,250	49,000	.001700	.000033	.....	.....	
12,500	50,000	.001733	.000033	.....	.....	
12,750	51,000	.001767	.000034	.....	.....	
13,000	52,000	.001800	.000033	.....	.....	
13,250	53,000	.001867	.000067			Elastic limit.
13,500	54,000	.003100	.001233	.....	.....	
13,750	55,000	.005500	.002400	.....	.....	
14,000	56,000	.006667	.001167	.....	.....	
14,500	58,000	.009367	.002700	.....	.....	
15,000	60,000	.011767	.002400	.....	.....	
15,500	62,000	.014133	.002366	.....	.....	
16,000	64,000	.016600	.002467	.....	.....	
16,500	66,000	.019367	.002767	.....	.....	
17,000	68,000	.022033	.002666	.....	.....	
17,500	70,000	.025000	.002967	.....	.....	
18,000	72,000	.028667	.003667	.....	.....	
18,500	74,000	.032667	.004000	.....	.....	
19,000	76,000	.037233	.004566	.....	.....	
19,500	78,000	.0400	.002767	.....	.....	
20,000	80,000	.0467	.0067	.....	.....	
20,500	82,000	.0567	.0100			Tensile strength.
21,000	84,000	.0667	.0100	.....	.....	
21,500	86,000	.0900	.0233	.....	.....	
21,800	87,200	.1333	.0433	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	87,200
Elastic limit per square inch of original section	do...	53,000
Elongation per inch after rupture	inch...	0.19667
Elongation per inch under strain at elastic limit	do...	.001867
Reduction in diameter at point of rupture	do...	.134
Reduction in area after rupture, per centum of original section		41.9
Position of rupture	1".56 from neck	
Character of broken surface	silky; trace of granulation	
Elongation of inch sections	".12, ".35*, ".12	

No. 2731.

Marks, ^{8 Cn R₅₀ T}
_{B T₉ I}

Diameter, ".505.

Sectional area, .20 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
200	1,000	0.	0.	0.	0.	Initial load.
1,000	5,000	.000050	.000050	0.	.....	
2,000	10,000	.000200	.000150	0.	.....	
3,000	15,000	.000350	.000150	0.	.....	
4,000	20,000	.000550	.000200	0.	.....	
5,000	25,000	.000800	.000250	0.	.....	
6,000	30,000	.000950	.000150	0.	.....	
7,000	35,000	.001100	.000150	0.	.....	
8,000	40,000	.001300	.000200	0.	.....	
8,200	41,000	.001450	.000150	.....	.....	
8,400	42,000	.001500	.000050	.....	.....	
8,600	43,000	.001550	.000050	.....	.....	
8,800	44,000	.001600	.000050	.....	.....	
9,000	45,000	.001600	0.	.....	.....	
9,200	46,000	.001650	.000050	.....	.....	
9,400	47,000	.001650	0.	.....	.....	
9,600	48,000	.001700	.000050			Elastic limit.
9,800	49,000	.001750	.000050	.....	.....	
10,000	50,000	.003250	.001500	.....	.....	
10,200	51,000	.005450	.002200	.....	.....	
10,400	52,000	.006750	.001300	.....	.....	
10,600	53,000	.007900	.001150	.....	.....	
10,800	54,000	.009150	.001250	.....	.....	
11,000	55,000	.010050	.000900	.....	.....	
11,200	56,000	.011400	.001350	.....	.....	
11,600	58,000	.014350	.002950	.....	.....	
12,000	60,000	.016500	.002150	.....	.....	
12,400	62,000	.019600	.003100	.....	.....	
12,800	64,000	.022500	.002900	.....	.....	
13,200	66,000	.025600	.003100	.....	.....	
13,600	68,000	.029400	.003800	.....	.....	
14,000	70,000	.032850	.003450	.....	.....	
14,400	72,000	.038100	.005250	.....	.....	
14,800	74,000	.043400	.005300	.....	.....	
15,200	76,000	.050050	.006650	.....	.....	
15,600	78,000	.052500	.002450	.....	.....	
16,000	80,000	.0650	.0125			Tensile strength.
16,400	82,000	.0950	.0300	.....	.....	
16,700	83,500	.1550	.0600	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	83,500
Elastic limit per square inch of original section	do...	49,000
Elongation per inch after rupture	inch..	0.2250
Elongation per inch under strain at elastic limit	do...	.001750
Reduction in diameter at point of rupture	do ..	.125
Reduction in area after rupture, per centum of original section		43.3
Position of rupture	".75 from neck	
Character of broken surface	silky, opened cracks in surface of stem	
Elongation of inch sections	".12, ".33*	

No. 2732.

Marks, $\frac{8}{M} \frac{C_n}{T_2} \frac{R_{50}}{I} T$

Diameter ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
10,000	40,000	.001300	.000200	0.	.....	
10,250	41,000	.001333	.000033	.....	.....	
10,500	42,000	.001367	.000034	.....	.....	
10,750	43,000	.001400	.000033	.....	.....	
11,000	44,000	.001433	.000033	.....	.....	
11,250	45,000	.001467	.000034	.....	.....	
11,500	46,000	.001500	.000033	.....	.....	
11,750	47,000	.001533	.000033	.....	.....	
12,000	48,000	.001567	.000034	.....	.....	
12,250	49,000	.001600	.000033	.....	.....	
12,500	50,000	.001667	.000067			Elastic limit.
12,750	51,000	.001933	.000266	.....	.....	
13,000	52,000	.003400	.001467	.....	.....	
13,250	53,000	.004567	.001167	.....	.....	
13,500	54,000	.006533	.001966	.....	.....	
14,000	56,000	.008933	.002400	.....	.....	
14,500	58,000	.011333	.002400	.....	.....	
15,000	60,000	.013567	.002234	.....	.....	
15,500	62,000	.016000	.002433	.....	.....	
16,000	64,000	.018600	.002600	.....	.....	
16,500	66,000	.021367	.002767	.....	.....	
17,000	68,000	.024267	.002900	.....	.....	
17,500	70,000	.027600	.003333	.....	.....	
18,000	72,000	.031267	.003667	.....	.....	
18,500	74,000	.035000	.003733	.....	.....	
19,000	76,000	.038333	.003333	.....	.....	
19,500	78,000	.041667	.003334	.....	.....	
20,000	80,000	.0533	.011633			Tensile strength.
20,500	82,000	.0633	.0100	.....	.....	
21,000	84,000	.0767	.0134	.....	.....	
21,500	86,000	.1100	.0333	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	86,000
Elastic limit per square inch of original section.....	do...	50,000
Elongation per inch after rupture.....	inch..	0.1467
Elongation per inch under strain at elastic limit.....	do..	.001667
Reduction in diameter at point of rupture.....	do...	.054
Reduction in area after rupture, per centum of original section.....		18.3
Position of rupture.....		1".35 from neck
Character of broken surface.....		granular; flaky spot at circumference
Elongation of inch sections.....		".10, ".22*, ".12

No. 2733.

Marks, $\frac{8}{M} \frac{C_n}{T_8} \frac{R_{50}}{O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000800	.000200	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
10,000	40,000	.001300	.000167	0.	.....	
10,250	41,000	.001300	0.			Elastic limit.
10,500	42,000	.001333	.000033	.....	.....	
10,750	43,000	.001367	.000034	.....	.....	
11,000	44,000	.001400	.000033	.....	.....	
11,250	45,000	.001433	.000033	.....	.....	
11,500	46,000	.001500	.000067	.....	.....	
11,750	47,000	.002400	.000900	.....	.....	
12,000	48,000	.004267	.001867	.....	.....	
12,250	49,000	.005667	.001400	.....	.....	
12,500	50,000	.006733	.001066	.....	.....	
13,000	52,000	.009100	.002367	.....	.....	
13,500	54,000	.011600	.002500	.....	.....	
14,000	56,000	.013733	.002133	.....	.....	
14,500	58,000	.016267	.002534	.....	.....	
15,000	60,000	.018567	.002300	.....	.....	
15,500	62,000	.021500	.002933	.....	.....	
16,000	64,000	.024500	.003000	.....	.....	
16,500	66,000	.027733	.003233	.....	.....	
17,000	68,000	.031333	.003600	.....	.....	
17,500	70,000	.035733	.004400	.....	.....	
18,000	72,000	.038333	.002600			Tensile strength.
18,500	74,000	.0433	.004967	.....	.....	
19,000	76,000	.0533	.0100	.....	.....	
19,500	78,000	.0633	.0100	.....	.....	
20,000	80,000	.0733	.0100	.....	.....	
20,500	82,000	.0967	.0234			Tensile strength.
21,000	84,000	.1600	.0633	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	84,000
Elastic limit per square inch of original section.....	do...	46,000
Elongation per inch after rupture.....	inch..	0.1800
Elongation per inch under strain at elastic limit.....	do...	.001500
Reduction in diameter at point of rupture.....	do...	.074
Reduction in area after rupture, per centum of original section.....		24.6
Position of rupture.....	1".10 from neck	
Character of broken surface, granular; dull flaky spot at the circumference; opened cracks in surface of stem.		
Elongation of inch sections.....	".14, ".15, ".25	

No. 2734.

Marks, ^{S Cn R₅₀ T}
_{M T₉ M}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000033	.000033	0.	.....	
2,500	10,000	.000233	.000200	0.	.....	
3,750	15,000	.000333	.000100	0.	.....	
5,000	20,000	.000567	.000234	0.	.....	
6,250	25,000	.000700	.000134	0.	.....	
7,500	30,000	.000900	.000200	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
10,000	40,000	.001267	.000200	0.	.....	
10,250	41,000	.001300	.000033	.....	.....	
10,500	42,000	.001333	.000033	.....	.....	
10,750	43,000	.001367	.000034	.....	.....	
11,000	44,000	.001400	.000033	.....	.....	
11,250	45,000	.001433	.000033	.....	.....	
11,500	46,000	.001467	.000034	.....	.....	
11,750	47,000	.001567	.000100	.....	.....	
12,000	48,000	.001633	.000066			Elastic limit.
12,250	49,000	.001733	.000100	.....	.....	
12,500	50,000	.002333	.000600	.....	.....	
12,750	51,000	.003567	.001234	.....	.....	
13,000	52,000	.004833	.001266	.....	.....	
13,500	54,000	.007333	.002500	.....	.....	
14,000	56,000	.009933	.002600	.....	.....	
14,500	58,000	.012033	.002100	.....	.....	
15,000	60,000	.014367	.002334	.....	.....	
15,500	62,000	.017033	.002666	.....	.....	
16,000	64,000	.019433	.002400	.....	.....	
16,500	66,000	.022333	.002900	.....	.....	
17,000	68,000	.025367	.003034	.....	.....	
17,500	70,000	.028833	.003466	.....	.....	
18,000	72,000	.032600	.003767	.....	.....	
18,500	74,000	.036900	.004300	.....	.....	
19,000	76,000	.041667	.004767	.....	.....	
19,500	78,000	.0467	.005033	.....	.....	
20,000	80,000	.0600	.0133			Tensile strength.
20,500	82,000	.0667	.0067	.....	.....	
20,600	82,400	.....	.....	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	82,400
Elastic limit, per square inch of original section.....	do...	49,000
Elongation per inch after rupture.....	inch..	0.0700
Elongation per inch under strain at elastic limit.....	do...	.001733
Reduction in diameter at point of rupture.....	do...	.034
Reduction in area after rupture, per centum of original section.....		11.8
Position of rupture.....		".53 from neck
Character of broken surface.....	granular; flaky spot at circumference	
Elongation of inch sections.....		".08*, ".06, ".07

TABULATION OF SPECIMENS FROM TUBES FOR 8-INCH CONVERTED RIFLES.

No. of test	Position in gun.	Location of specimens.	Elastic limit per square inch.	Tensile strength per square inch.	Elongation.	Contraction of area.	Appearance of fracture.	Specific gravity.	Hardness.	Remarks.
2341	Breech No. 7	Inside	Pounds. 37,000	Pounds. 70,720	Per cent. 18.0	Per cent. 21.4	Granular; defective spot.	.....	.....	Additional specimen.
2342	do	do	34,000	69,920	13.3	18.3	do	.....	.....	Do.
2343	do	do	37,000	68,000	10.7	15.0	do	.....	.....	Do.
2344	Muzzle No. 7	do	41,000	78,880	26.0	44.6	Silky	.....	.....	Do.
2345	do	Outside	39,000	76,440	27.0	49.7	do	.....	.....	Do.
2346	do	Middle	37,000	79,160	23.7	44.6	do	.....	.....	Do.
2662	Breech No. 7	Inside	33,000	70,280	26.7	49.7	do	.....	.....	New tube.
2663	do	Outside	33,000	73,960	20.0	30.6	Silky; flaky	.....	.....	Do.
2664	do	Middle	32,000	71,520	26.0	36.4	Silky; surface cracks	.....	.....	Do.
2665	Muzzle No. 7	Inside	39,000	77,680	22.7	44.6	Silky	.....	.....	Do.
2666	do	Outside	37,000	78,200	20.7	44.6	do	.....	.....	Do.
2667	do	Middle	38,000	77,520	20.0	41.9	do	.....	.....	Do.
2779	Breech No. 7	Inside	40,000	80,800	18.0	39.2	Silky; flaky	.....	.....	Additional specimen.
2780	do	Outside	43,000	84,840	18.7	44.6	Silky	.....	.....	Do.
2781	do	Middle	38,000	76,560	20.3	44.6	Silky; surface cracks	.....	.....	Do.
2782	Muzzle No. 7	Inside	46,000	82,800	20.3	49.7	Silky	.....	.....	Do.
2783	do	Outside	41,000	78,360	19.7	44.6	do	.....	.....	Do.
2784	do	Middle	38,000	80,240	19.0	52.2	do	.....	.....	Do.
2146	Breech No. 8	Inside	35,000	70,200	26.0	44.6	Silky; surface cracks	.....	11.23	New tube.
2147	do	Outside	37,000	73,520	25.0	47.2	do	7.8591	.....	Do.
2148	do	Middle	41,000	76,080	23.0	33.5	do	.....	.....	Do.
2149	Muzzle No. 8	Inside	35,000	75,160	21.7	39.2	Silky	.....	.....	Do.
2150	do	Outside	37,000	77,640	23.3	36.4	(Granular, 60 per cent.; silky, 40 per cent.)	.....	.....	Do.
2151	do	Middle	41,000	80,060	23.3	39.2	Granular, 50 per cent.; silky, 50 per cent.	.....	.....	Do.
1000	Breech No. 9	Inside	44,000	77,120	25.3	47.2	Silky	.....	.....	Additional specimen.
2161	Breech No. 12	do	39,000	76,680	26.3	52.2	do	7.8588	13.14	New tube.
2165	do	Outside	41,000	78,320	21.0	47.2	do	.....	.....	Do.
2166	do	Middle	40,000	75,000	29.3	47.2	do	.....	.....	Do.
2167	Muzzle No. 12	Inside	43,000	79,040	24.0	44.6	do	.....	.....	Do.
2168	do	Outside	41,000	76,840	23.0	52.2	do	.....	.....	Do.
2169	do	Middle	40,000	75,280	25.7	44.6	Silky; slight granulation	.....	.....	Do.
2181	Breech No. 13	Inside	41,000	75,520	26.7	54.6	Silky	.....	.....	Do.
2182	do	Outside	44,000	78,800	26.0	52.2	do	.....	.....	Do.
2183	do	Middle	40,000	77,000	24.3	52.2	do	.....	.....	Do.
2184	Muzzle No. 13	Inside	43,000	76,800	25.7	47.2	do	.....	.....	Do.
2185	do	Outside	41,000	77,840	23.3	54.6	do	.....	.....	Do.
2186	do	Middle	46,000	80,400	24.7	49.7	do	.....	.....	Do.
2350	Breech No. 15	Inside	43,000	70,320	30.0	59.3	do	.....	.....	Do.
2351	do	Outside	46,000	71,200	28.7	59.3	do	.....	.....	Do.

TABULATION OF SPECIMENS FROM TUBES FOR 8-INCH CONVERTED RIFLES—Continued.

No. of test.	Position in gun.	Location of specimens.	Elastic limit per square inch.	Tensile strength per square inch.	Elongation.	Contraction of area.	Appearance of fracture.	Specific gravity.	Hardness.	Remarks.
2352	Breech No. 15.	Middle.	Pounds. 40,000	Pounds. 70,200	Per cent. 30.7	Per cent. 57.0	Silky	.....	.....	New tube.
2353	Muzzle No. 15.	Inside	41,000	75,160	29.3	57.0	Silky; surface cracks	.....	.....	Do.
2354	do	Outside	43,000	76,400	25.0	57.0	Silky	.....	.....	Do.
2355	do	Middle.	39,000	72,000	27.3	52.2	do	.....	.....	Do.
2618	Breech No. 15.	Inside	43,000	80,720	22.0	49.7	Silky; surface cracks	.....	.....	Do.
2619	do	Outside	42,000	81,840	22.3	54.6	Silky	.....	.....	Do.
2620	do	Middle.	42,000	80,760	20.3	49.7	do	.....	.....	Do.
2621	Muzzle No. 15.	Inside	45,000	87,680	22.3	49.7	do	.....	.....	Do.
2622	do	Outside	47,000	87,920	18.3	49.7	do	.....	.....	Do.
2623	do	Middle.	45,000	86,080	19.3	47.2	do	.....	.....	Do.
2365	Breech No. 16.	Inside	39,000	72,000	19.3	27.6	Granular; dull spot	.....	.....	Do.
2366	do	Outside	38,000	76,120	22.3	36.4	do	.....	.....	Do.
2367	do	Middle.	40,000	75,520	24.3	57.0	Silky	.....	.....	Do.
2368	Muzzle No. 16.	Inside	39,000	77,680	20.3	41.9	Granular, 70 per cent.; silky, 30 per cent.	.....	.....	Do.
2369	do	Outside	42,000	80,440	24.7	52.2	Silky	.....	.....	Do.
2370	do	Middle.	40,000	78,000	23.3	49.7	Silky; trace of granulation	.....	.....	Do.
2555	Breech No. 16.	Inside	43,000	76,080	17.7	24.6	Granular; flaky spot	.....	.....	Additional specimen
2556	do	Outside.	39,000	76,640	26.3	54.6	Silky	.....	.....	Do.
2557	do	Middle.	40,000	76,320	24.0	41.9	do	.....	.....	Do.
2612	do	Inside	45,000	77,200	25.7	57.0	Silky; surface cracks	.....	.....	Do.
2613	do	Outside	38,000	74,000	25.3	49.7	Silky	.....	.....	Do.
2614	do	Middle.	39,000	76,000	26.0	52.2	do	.....	.....	Do.
997	Breech No. 18.	Inside	31,000	71,630	28.0	44.6	do	.....	.....	Do.
998	do	Outside	37,000	74,480	19.3	33.5	Granular; dull spot	.....	.....	Do.
999	do	Middle.	34,000	71,920	14.7	21.4	Granular; blow hole	.....	.....	Do.
2125	do	Inside	31,000	70,840	27.7	41.9	Silky; slight granulation	.....	.....	Do.
2126	do	Outside	35,000	73,040	31.0	49.7	Silky	.....	.....	Do.
2127	do	Middle.	32,000	70,800	14.3	21.4	Granular; dull spot	.....	.....	Do.
2420	do	Inside	38,000	72,560	25.7	44.6	Silky; surface cracks	.....	.....	New tube.
2421	do	Outside	37,000	73,120	24.3	49.7	do	.....	.....	Do.
2422	do	Middle.	40,000	75,000	24.0	41.9	do	.....	.....	Do.
2423	Muzzle No. 18.	Inside	38,000	73,840	16.0	21.4	Granular; flaky spot	.....	.....	Do.
2424	do	Outside	41,000	76,360	17.7	21.4	Granular; dull spot	.....	.....	Do.
2425	do	Middle.	36,000	72,600	19.7	27.6	Granular, 40 per cent.; silky, 60 per cent.	.....	.....	Do.
2630	Breech No. 18.	Inside	41,000	76,440	20.3	36.4	Silky; surface cracks	.....	.....	Additional specimen.
2631	do	Outside	44,000	82,840	20.7	44.6	do	.....	.....	Do.
2632	do	Middle.	42,000	78,800	20.3	41.9	do	.....	.....	Do.
2633	Muzzle No. 18.	Inside	44,000	80,800	13.7	30.6	Granular; flaky spot	.....	.....	Do.
2634	do	Outside	41,000	82,800	17.0	30.6	Granular, 70 per cent.; silky, 30 per cent.	.....	.....	Do.
2635	do	Middle	39,000	76,000	19.3	44.6	Silky	.....	.....	Do.
2689	do	Inside	43,000	81,920	14.0	24.6	Granular; flaky spot	.....	.....	Do.

2690	do	Outside	44,000	82,240	20.7	44.6	Silky; surface cracks	Do.
2691	do	Middle	40,000	77,840	18.7	49.7	Silky	Do.
2170	Breech No. 19	Inside	35,000	74,040	20.7	39.2	do	Do.
2171	do	Outside	39,000	78,800	22.7	47.2	do	Do.
2217	do	Middle	35,000	76,480	21.3	36.4	do	Do.
2173	Muzzle No. 19	Inside	44,000	80,080	22.3	44.6	do	Do.
2174	do	Outside	45,000	80,840	23.0	41.9	do	Do.
2499	Breech No. 19	Inside	38,000	71,560	27.3	59.3	do	New tube.
2500	do	Outside	35,000	71,920	25.3	57.0	do	Do.
2501	do	Middle	35,000	67,280	30.7	57.0	Silky; surface cracks	Do.
2502	Muzzle No. 19	Inside	41,000	77,920	17.3	30.6	Granular, dull spot	Do.
2503	do	Outside	41,000	76,800	26.3	54.6	Silky	Do.
2504	do	Middle	39,000	75,040	33.7	54.6	do	Do.
2624	Breech No. 19	Inside	41,000	76,720	23.3	44.6	Silky; surface cracks	Additional specimen.
2625	do	Outside	37,000	75,800	23.3	41.9	Silky	Do.
2626	do	Middle	38,000	75,280	23.7	52.2	do	Do.
2627	Muzzle No. 19	Inside	40,000	78,800	21.3	57.0	do	Do.
2628	do	Outside	46,000	83,600	20.7	49.7	do	Do.
2629	do	Middle	45,000	82,240	20.3	39.2	do	Do.
1160	Breech No. 23	Inside	46,000	79,040	20.3	30.6	Granular; crack "3 in surface	Do.
1161	Breech No. 26	Outside	40,000	77,000	10.7	15.0	Granular; dull metal at circumference.	Do.
1162	Muzzle No. 26	Inside	45,000	84,760	22.3	49.7	Silky	Do.
2359	Breech No. 26	do	41,000	68,640	28.0	65.8	do	New tube.
2360	do	Outside	41,000	69,200	29.7	59.3	do	Do.
2361	do	Middle	38,000	69,920	30.3	63.7	do	Do.
2362	Muzzle No. 26	Inside	41,000	75,400	24.7	54.6	do	Do.
2363	do	Outside	40,000	74,000	23.7	52.2	do	Do.
2364	do	Middle	40,000	76,200	25.7	49.7	do	Do.
2594	Breech No. 26	Inside	43,000	76,200	24.3	57.0	Fine silky	Additional specimen.
2595	do	Outside	43,000	77,800	26.3	59.3	Silky	Do.
2596	do	Middle	42,000	78,080	27.0	57.0	do	Do.
2597	Muzzle No. 26	Inside	44,000	83,600	18.7	49.7	do	Do.
2598	do	Outside	42,000	81,760	22.3	49.7	do	Do.
2599	do	Middle	42,000	81,640	22.7	47.2	do	Do.
2487	Breech No. 27	Inside	37,000	68,720	24.3	27.6	Granular; flaky spot	Do.
2488	do	Outside	39,000	72,080	27.0	49.7	Silky	Do.
2489	do	Middle	39,000	72,080	28.7	54.6	Silky; surface cracks	Do.
2490	Muzzle No. 27	Inside	39,000	75,520	23.0	49.7	Silky	Do.
2491	do	Outside	41,000	79,120	26.0	44.6	do	Do.
2492	do	Middle	41,000	80,800	22.0	36.4	do	Do.
2636	Breech No. 27	Inside	42,000	78,320	20.0	39.2	Silky; surface cracks	Additional specimen.
2637	do	Outside	39,000	77,520	26.7	54.6	do	Do.
2638	do	Middle	40,000	77,240	25.7	54.6	Silky	Do.
2639	Muzzle No. 27	Inside	43,000	78,400	20.3	49.7	do	Do.
2640	do	Outside	43,000	82,440	19.3	39.2	Granular, 70 per cent.; silky, 30 per cent.	Do.
2641	do	Middle	43,000	82,280	15.0	27.6	Granular; dull spot	Do.
2692	do	Inside	42,000	82,880	22.7	47.2	Silky	Do.
2693	do	Outside	45,000	82,720	23.7	49.7	do	Do.
2694	do	Middle	41,000	80,200	16.0	18.3	Granular; flaky spot	Do.
1683	Breech No. 32	Inside	38,000	75,960	26.0	41.9	Silky	Do.
1684	do	Outside	37,000	75,800	23.3	39.2	Granular; dull spot	Do.

TABULATION OF SPECIMENS FROM TUBES FOR 8-INCH CONVERTED RIFLES—Continued.

No. of test.	Position in gun.	Location of specimens.	Elastic limit per square inch.	Tensile strength per square inch.	Elongation.	Contraction of area.	Appearance of fracture.	Specific gravity.	Hardness.	Remarks.
1685	Breech No. 32	Middle	Pounds. 38,000	Pounds. 76,720	Per cent. 26.0	Per cent. 47.2	Silky	.....	.....	Additional specimen.
1686	Muzzle No. 32	Inside	47,000	81,160	14.3	21.4	Granular with dull-colored metal	.....	.....	Do.
1687	do	Outside	45,000	82,080	21.3	41.9	Granular; dull-center	.....	.....	Do.
1688	do	Middle	42,000	83,760	16.7	27.6	Granular; dull-colored spot	.....	.....	Do.
2347	do	Inside	34,000	72,640	18.3	27.6	Granular; flaky spot	.....	.....	Do.
2348	do	Outside	38,000	75,840	22.7	33.5	Granular; dull spot	.....	.....	Do.
2349	do	Middle	35,000	73,520	13.7	21.4	Granular	.....	.....	Do.
2668	Breech No. 32	Inside	35,000	72,440	29.3	49.7	Silky	.....	.....	New tube.
2669	do	Outside	36,000	76,960	25.7	54.6	do	.....	.....	Do.
2670	do	Middle	35,000	74,800	25.3	49.7	do	.....	.....	Do.
2671	Muzzle No. 32	Inside	41,000	79,920	20.3	49.7	do	.....	.....	Do.
2672	do	Outside	42,000	82,000	22.0	47.2	do	.....	.....	Do.
2673	do	Middle	38,000	76,600	22.3	49.7	do	.....	.....	Do.
1001	Breech No. 35	Inside	37,000	73,040	27.7	49.7	do	7.8552	11.49	Do.
1002	do	Outside	41,000	75,800	25.3	52.2	do	.....	.....	Do.
1003	do	Middle	38,000	75,200	26.0	52.2	do	.....	.....	Do.
1004	Muzzle No. 35	Inside	46,000	78,000	21.3	41.9	Silky, 50 per cent.; granular, 50 per cent.	7.8517	13.65	Do.
1005	do	Outside	44,000	79,200	26.3	49.7	Silky	.....	.....	Do.
1006	do	Middle	40,000	77,480	26.3	49.7	do	.....	.....	Do.
1007	Breech No. 36	Inside	38,000	72,200	27.0	54.6	do	7.8577	11.92	Do.
1008	do	Outside	42,000	78,280	27.0	44.6	do	.....	.....	Do.
1009	do	Middle	39,000	75,440	24.7	44.6	do	.....	.....	Do.
1010	Muzzle No. 36	Inside	42,000	78,440	21.7	33.5	Granular, 60 per cent.; silky, 40 per cent.	7.8556	13.33	Do.
1011	do	Outside	43,000	79,560	27.0	47.2	Silky with fine granulation	.....	.....	Do.
1012	do	Middle	41,000	77,400	19.7	24.6	Granular; dull spot	.....	.....	Do.
2122	do	Inside	38,000	79,360	23.0	39.2	Silky, 90 per cent.; granular, 10 per cent.	.....	.....	Additional specimen.
2123	do	Outside	38,000	77,000	22.3	44.6	Silky	.....	.....	Do.
2124	do	Middle	40,000	76,000	22.3	41.9	Silky; slight granulation	.....	.....	Do.
992	Breech No. 37	Inside	43,000	77,760	20.7	27.6	Granular, dull spot	.....	.....	Do.
992½	do	Outside	38,000	76,520	21.7	36.4	Silky, 90 per cent.; granular, 10 per cent.	.....	.....	Do.
993	do	Middle	37,000	78,160	20.0	24.6	Granular; dull spot	.....	.....	Do.
994	Muzzle No. 37	Inside	41,000	79,280	17.3	18.3	do	.....	.....	Do.
895	do	Outside	41,000	77,960	30.3	47.2	Fine silky	.....	.....	Do.
996	do	Middle	41,000	82,320	18.0	18.3	Dull-colored, furrowed surface; small granular section	.....	.....	Do.
2128	Breech No. 37	Inside	43,000	72,240	24.3	44.6	Silky	.....	.....	Additional specimen.
2129	do	Outside	47,000	78,000	23.3	39.2	Silky; surface cracks	.....	.....	Do.

2130	do.....	Middle.....	41,000	73,960	21.3	33.5	Granular, 50 per cent.; silky, 50 per cent.	.....	Do.
2131	Muzzle No. 37	Inside	43,000	72,120	27.7	47.2	Silky; surface cracks	.....	Do.
2132	do	Outside	43,000	74,800	28.3	54.6	Silky	.....	Do.
2133	do	Middle	41,000	73,560	27.3	44.6	Silky; traces of granulation	.....	Do.
2092	Breech No. 38	Inside	44,000	79,640	25.0	54.6	Silky	.....	Do.
2093	do	Outside	46,000	86,200	23.7	49.7	do	.....	
2094	do	Middle	41,000	76,560	26.7	52.2	do	.....	
2095	Muzzle No. 38	Inside	42,000	82,440	24.3	49.7	do	.....	
2096	do	Outside	40,000	79,840	23.0	49.7	do	.....	
2097	do	Middle	44,000	85,200	25.7	47.2	Silky; trace of granulation	.....	
2134	Breech No. 39	Inside	46,000	75,480	27.0	57.0	Silky; surface cracks	.....	
2135	do	Outside	41,000	73,400	26.0	39.2	do	.....	
2136	do	Middle	42,000	74,720	24.7	47.2	do	.....	
2137	Muzzle No. 39	Inside	45,000	76,160	23.3	49.7	do	.....	
2138	do	Outside	41,000	75,480	16.7	24.6	Granular; dull spot	.....	
2139	do	Middle	42,000	76,880	19.3	24.6	do	.....	
2484	do	Inside	43,000	76,000	24.3	54.6	Silky	.....	Additional specimen.
2485	do	Outside	44,000	77,400	20.0	41.9	Silky; slight granulation	.....	Do.
2486	do	Middle	42,000	75,760	22.3	30.6	Granular; dull spot	.....	Do.
1129	Breech No. 40	Inside	40,000	72,720	26.7	47.2	Silky	7.8556	11.92
1130	do	Outside	40,000	74,960	25.3	44.6	do	.....	
1131	do	Middle	35,000	71,680	23.3	49.7	do	.....	
1132	Muzzle No. 40	Inside	34,000	72,800	24.0	41.9	do	7.8528	11.59
1133	do	Outside	36,000	77,120	23.7	24.6	Granular; flaky spot	.....	
1134	do	Middle	35,000	76,000	23.7	36.4	Silky	.....	
2098	Breech No. 41	Inside	40,000	76,760	29.7	59.3	do	.....	
2099	do	Outside	44,000	82,400	16.7	24.6	Granular; dull spot	.....	
2100	do	Middle	41,000	79,640	24.3	47.2	Silky; trace of granulation	.....	
2101	Muzzle No. 41	Inside	48,000	87,640	13.3	44.6	Granular; small dull spot	.....	
2102	do	Outside	50,000	87,960	19.3	39.2	Granular; dull spot	.....	
2103	do	Middle	47,000	80,320	17.3	39.2	Granular; dull center	.....	
2478	Breech No. 41	Inside	39,000	74,600	27.0	57.0	Silky	.....	Additional specimen.
2479	do	Outside	43,000	78,240	24.3	54.6	do	.....	Do.
2480	do	Middle	40,000	75,400	26.0	57.0	do	.....	Do.
2481	Muzzle No. 41	Inside	44,000	77,120	16.7	21.4	Granular; flaky spot	.....	Do.
2482	do	Outside	44,000	76,240	24.3	47.2	Silky	.....	Do.
2483	do	Middle	43,000	77,400	23.3	49.7	do	.....	Do.
2558	do	Inside	43,000	76,000	20.0	41.9	do	.....	Do.
2559	do	Outside	39,000	75,640	27.3	52.2	do	.....	Do.
2560	do	Middle	38,000	76,560	17.7	24.6	Granular; flaky spot	.....	Do.
1135	Breech No. 42	Inside	38,000	73,600	24.0	36.4	Silky; surface cracks	7.8590	12.36
1136	do	Outside	39,000	74,440	28.3	57.0	Silky	.....	
1137	do	Middle	35,000	71,520	26.7	44.6	Silky; surface cracks	7.8544	14.98
1138	Muzzle No. 42	Inside	40,000	78,880	22.0	47.2	do	.....	
1139	Muzzle No. 42	Outside	42,000	80,560	24.3	47.2	do	.....	
1140	do	Middle	36,000	76,080	20.0	21.4	Granular; dull, flaky spot	.....	
1141	Breech No. 43	Inside	40,000	74,800	25.0	49.7	Silky	7.8571	12.72
1142	do	Outside	40,000	76,040	24.0	52.2	do	.....	
1143	do	Middle	39,000	75,040	29.0	54.6	do	.....	
1144	Muzzle No. 43	Inside	37,000	78,440	23.3	39.2	Silky; slightly granular	7.8537	12.78
1145	do	Outside	38,000	75,920	24.3	39.2	Silky	.....	

TABULATION OF SPECIMENS FROM TUBES FOR 8-INCH CONVERTED RIFLES—Continued.

No. of test.	Position in gun.	Location of specimens.	Elastic limit per square inch.	Tensile strength per square inch.	Elongation.	Contraction of area.	Appearance of fracture.	Specific gravity.	Hardness.	Remarks.
1146	Muzzle No. 43.	Middle	Pounds. 37,000	Pounds. 78,680	Per cent. 20.3	Per cent. 21.4	Granular; dull flaky spot.	.....	.....	
2152	Breech No. 44.	Inside	40,000	75,400	17.7	47.2	Granular, 70 per cent.; dull silky, 30 per cent.	7.8568	12.36	
2153	do	Outside	44,000	77,600	26.0	52.2	Silky	.....	.....	
2154	do	Middle	41,000	78,000	26.3	52.2	do	.....	.....	
2155	Muzzle No. 44.	Inside	46,000	81,640	15.7	21.4	Granular; dull spot.	.....	.....	
2156	do	Outside	43,000	78,080	24.3	49.7	Silky	.....	.....	
2157	do	Middle	39,000	76,400	17.7	24.6	Granular; dull spot	.....	.....	
2723	Breech No. 44.	Inside	41,000	81,000	22.7	52.2	Silky	.....	.....	New tube.
2724	do	Outside	41,000	83,000	22.3	49.7	do	.....	.....	Do.
2725	do	Middle	41,000	76,000	25.7	52.2	do	.....	.....	Do.
2726	Muzzle No. 44.	Inside	42,000	80,000	21.0	33.5	Granular; flaky streak	.....	.....	Do.
2727	do	Outside	43,000	81,000	14.3	18.3	do	.....	.....	Do.
2728	do	Middle	41,000	81,200	23.3	47.2	Silky	.....	.....	Do.
2768	do	Inside	42,000	80,080	15.7	21.4	Granular; flaky spot.	.....	.....	Additional specimen.
2769	do	Outside	44,000	82,000	20.3	30.6	Silky	.....	.....	Do.
2770	do	Middle	42,000	80,640	21.7	49.7	do	.....	.....	Do.
2104	Breech No. 45.	Inside	40,000	74,040	27.0	44.6	Silky; surface cracks	7.8583	12.42	
2105	do	Outside	41,000	76,480	24.3	47.2	do	.....	.....	
2106	do	Middle	39,000	72,360	26.7	49.7	do	.....	.....	
2107	Muzzle No. 45.	Inside	43,000	80,000	22.3	41.9	Silky	.....	.....	
2108	do	Outside	40,000	75,880	22.3	49.7	do	.....	.....	
2109	do	Middle	35,000	72,840	24.7	33.5	Silky; surface cracks	.....	.....	
2110	Breech No. 46.	Inside	44,000	75,680	24.7	57.0	Silky	7.8632	12.14	
2111	do	Outside	40,000	74,760	25.7	52.2	do	.....	.....	
2112	do	Middle	39,000	73,040	27.0	57.0	do	.....	.....	
2113	Muzzle No. 46.	Inside	45,000	82,840	19.7	36.4	Granular; dull spot.	.....	.....	
2114	do	Outside	43,000	81,200	20.0	24.6	do	.....	.....	
2115	do	Middle	40,000	78,680	25.7	44.6	Silky	.....	.....	
2356	do	Inside	43,000	80,800	25.7	52.2	do	.....	.....	Additional specimen.
2357	do	Outside	42,000	81,600	19.0	27.6	Granular; dull spot	.....	.....	Do.
2358	do	Middle	41,000	81,040	19.7	24.6	Granular; dull metal	.....	.....	Do.
2434	Breech No. 46.	Inside	43,000	75,240	28.7	59.3	Silky	.....	.....	Do.
2435	Muzzle No. 46.	do	40,000	76,800	23.0	52.2	do	.....	.....	Do.
2436	do	Outside	35,000	73,240	21.7	36.4	Granular; flaky spot	.....	.....	Do.
2437	do	Middle	34,000	73,120	23.3	30.6	do	.....	.....	
2116	Breech No. 47.	Inside	42,000	74,440	27.7	54.6	Silky; surface cracks	7.8607	11.81	
2117	do	Outside	39,000	70,520	28.3	54.6	Silky	.....	.....	
2118	do	Middle	38,000	69,200	28.0	54.6	Silky; surface cracks	.....	.....	
2119	Muzzle No. 47.	Inside	39,000	72,240	29.3	49.7	do	.....	.....	
2120	do	Outside	41,000	72,680	26.7	44.6	do	.....	.....	

No.	do	Weight	Value	Additional specimen.
2121	do	35,000	73,560	
2158	Breech No. 48	35,000	68,200	
2159	do	37,000	72,640	
2160	do	37,000	71,720	
2161	Muzzle No. 48	40,000	75,920	
2162	do	38,000	72,800	
2163	do	37,000	71,520	
2493	Breech No. 48	39,000	71,040	
2494	do	37,000	70,000	
2495	do	36,000	70,360	
2496	Muzzle No. 48	39,000	74,040	
2497	do	38,000	72,640	
2498	do	37,000	72,400	
2713	Breech No. 48	49,000	81,920	
2717	do	50,000	84,950	
2718	do	49,000	82,500	
2719	do	54,000	85,500	
2714	Muzzle No. 48	51,000	86,600	
2715	do	49,000	85,600	
2716	do	50,000	88,210	
2735	do	41,000	80,200	
2736	do	42,000	78,720	
2737	do	42,000	82,160	
2140	Breech No. 49	36,000	71,200	
2141	do	35,000	71,600	
2142	do	43,000	78,320	
2143	Muzzle No. 49	37,000	75,560	
2144	do	43,000	80,000	
2145	do	36,000	73,680	
2371	do	41,000	78,640	
2372	do	37,000	73,920	
2373	do	40,000	78,880	
2175	Breech No. 50	39,000	74,200	
2176	do	39,000	76,200	
2177	do	34,000	71,480	
2178	Muzzle No. 50	36,000	76,040	
2179	do	38,000	77,680	
2180	do	43,000	80,240	
2534	Breech No. 50	35,000	72,640	
2535	do	38,000	73,500	
2536	do	35,000	74,880	
2537	Muzzle No. 50	38,000	76,400	
2538	do	38,000	76,600	

TABULATION OF SPECIMENS FROM TUBES FOR 8-INCH CONVERTED RIFLES—Continued.

No. of test.	Position in gun.	Location of specimens.	Elastic limit per square inch.	Tensile strength per square inch.	Elongation.	Contraction of area.	Appearance of fracture.	Specific gravity.	Hardness.	Remarks.
2539	Muzzle No. 50.	Middle.	Pounds. 37,000	Pounds. 73,440	Per cent. 23.7	Per cent. 33.5	Granular; dull flaky spot.	.....	.....	Additional specimen.
2729	Breech No. 50.	Inside.	46,000	80,000	13.0	21.4	do	.....	.....	Do.
2730	do	Outside.	53,000	87,200	19.7	41.9	Silky; trace of granulation.	.....	.....	Do.
2731	do	Inside.	49,000	83,500	22.5	43.3	Silky; surface cracks.	.....	.....	Do.
2732	Muzzle No. 50.	do	50,000	86,000	14.7	18.3	Granular; flaky spot.	.....	.....	Do.
2733	do	Outside.	46,000	84,000	18.0	24.6	do	.....	.....	Do.
2734	do	Middle.	49,000	82,400	7.0	11.8	do	.....	.....	Do.

REJECTED TUBE NO. 15, 8-INCH CONVERTED RIFLE.

Steel specimens taken from muzzle end, after a piece of the tube 15 inches long had been heated by pouring molten cast-iron about it. Earlier tests from this tube published in Report of Tests, 1885.

See Chief of Ordnance Report, 1885. Appendix 30.

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REJECTED TUBE NO. 15, 8-INCH CONVERTED RIFLE.

No. 1026.

Marks, $\frac{8}{M} \frac{T_{15}}{T_4 I}$

Diameter, ".563.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	-----	
2,500	10,000	.000200	.000100	0.	-----	
3,750	15,000	.000367	.000167	0.	-----	
5,000	20,000	.000533	.000166	0.	-----	
6,250	25,000	.000633	.000100	— .000033	.000033	
7,500	30,000	.000800	.000167	— .000033	0.	
8,750	35,000	.001000	.000200	— .000033	0.	
10,000	40,000	.001133	.000133	— .000033	0.	
11,250	45,000	.001267	.000134	0.	.000033	Elastic limit.
11,500	46,000	.001367	.000100	-----	-----	
11,750	47,000	.003110	.001733	-----	-----	
12,000	48,000	.004100	.001000	-----	-----	
12,250	49,000	.004900	.000800	-----	-----	
12,500	50,000	.009033	.004133	.007333	.007333	
12,750	51,000	.009667	.000634	-----	-----	
13,000	52,000	.010333	.000666	-----	-----	
13,250	53,000	.011400	.001067	-----	-----	
13,500	54,000	.013100	.001700	-----	-----	
13,750	55,000	.014333	.001233	-----	-----	Tensile strength.
14,000	56,000	.015800	.001467	-----	-----	
14,250	57,000	.017100	.001300	-----	-----	
14,500	58,000	.018400	.001300	-----	-----	
14,750	59,000	.020167	.001767	-----	-----	
15,000	60,000	.022000	.001833	-----	-----	
15,500	62,000	.025033	.003033	-----	-----	
16,000	64,000	.028367	.003334	-----	-----	
16,500	66,000	.033667	.005300	-----	-----	
17,000	68,000	.038333	.004666	-----	-----	
17,500	70,000	.044667	.003634	-----	-----	
18,000	72,000	.0533	.008633	-----	-----	
18,500	74,000	.0633	.0100	-----	-----	
19,000	76,000	.0733	.0100	-----	-----	
19,500	78,000	.1000	.0267	-----	-----	
19,620	78,480	.1367	.0367	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	78,480
Elastic limit per square inch of original section.....	do...	45,000
Elongation per inch after rupture	inch..	0.2100
Elongation per inch under strain at elastic limit	do...	.001267
Reduction in diameter at point of rupture.....	do...	.184
Reduction in area after rupture, per centum of original section.....		54.6
Position of rupture	$\frac{3}{4}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".43*, ".12, ".08	

No. 1027.

Marks, $\frac{8}{M} T_{15}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	-----	
2,500	10,000	.000200	.000100	0.	-----	
3,750	15,000	.000367	.000167	0.	-----	
5,000	20,000	.000533	.000166	0.	-----	
6,250	25,000	.000700	.000167	0.	-----	
7,500	30,000	.000867	.000167	0.	-----	
8,750	35,000	.001033	.000166	0.	-----	
10,000	40,000	.001200	.000167	0.	-----	
10,250	41,000	.001233	.000033	-----	-----	Elastic limit.
10,500	42,000	.001267	.000034	-----	-----	
10,750	43,000	.001300	.000033	-----	-----	
11,000	44,000	.001400	.000100	-----	-----	
11,250	45,000	.006633	.005233	.004967	.004967	
11,500	46,000	.007667	.001034	-----	-----	
11,750	47,000	.008500	.000833	-----	-----	
12,000	48,000	.009167	.000667	-----	-----	
12,250	49,000	.010067	.000900	-----	-----	
12,500	50,000	.011367	.001300	.009567	.004600	
12,750	51,000	.012000	.000633	-----	-----	
13,000	52,000	.012767	.000767	-----	-----	
13,250	53,000	.014067	.001300	-----	-----	
13,500	54,000	.015433	.001366	-----	-----	
13,750	55,000	.016667	.001234	-----	-----	
14,000	56,000	.018067	.001400	-----	-----	
14,250	57,000	.019500	.001433	-----	-----	
14,500	58,000	.020767	.001267	-----	-----	
14,750	59,000	.022067	.001300	-----	-----	
15,000	60,000	.023767	.001700	-----	-----	Tensile strength.
15,500	62,000	.027000	.003233	-----	-----	
16,000	64,000	.030267	.003267	-----	-----	
16,500	66,000	.034267	.004000	-----	-----	
17,000	68,000	.038667	.004400	-----	-----	
17,500	70,000	.043667	.005000	-----	-----	
18,000	72,000	.0533	.009633	-----	-----	
18,500	74,000	.0633	.0100	-----	-----	
19,000	76,000	.0733	.0100	-----	-----	
19,500	78,000	.0900	.0167	-----	-----	
20,000	80,000	.1200	.0300	-----	-----	
20,060	80,240	.1667	.0467	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	80,240
Elastic limit per square inch of original section	do...	43,000
Elongation per inch after rupture	inch..	0.2433
Elongation per inch under strain at elastic limit	do...	.001300
Reduction in diameter at point of rupture	do...	.144
Reduction in area after rupture, per centum of original section		44.6
Position of rupture	$\frac{3}{8}$ inch from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".21, ".40, ".12	

No. 1028.

Marks, $\frac{8T_{15}}{MT_6O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000300	.000200	0.	.....	
3,750	15,000	.000433	.000133	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001067	.000134	.....	.....	
9,000	36,000	.001100	.000033	.....	.....	
9,250	37,000	.001133	.000033	.....	.....	
9,500	38,000	.001200	.000067			Elastic limit.
9,750	39,000	.001267	.000067	.....	.....	
10,000	40,000	.001333	.000066	.000067	.000067	
10,250	41,000	.002733	.001400	.....	.....	
10,500	42,000	.003600	.000867	.....	.....	
10,750	43,000	.003900	.000300	.....	.....	
11,000	44,000	.004867	.000967	.....	.....	
11,250	45,000	.005833	.000966	.004267	.001200	
11,500	46,000	.006667	.000834	.....	.....	
11,750	47,000	.008667	.002000	.....	.....	
12,000	48,000	.010333	.001666			
12,250	49,000	.011333	.001000	.....	.....	
12,500	50,000	.012433	.001100	.010667	.006400	
12,750	51,000	.013067	.000634	.....	.....	
13,000	52,000	.014167	.001100	.....	.....	
13,250	53,000	.015500	.001333	.....	.....	
13,500	54,000	.017133	.001633	.....	.....	
13,750	55,000	.018267	.001134	.....	.....	
14,000	56,000	.019567	.001300	.....	.....	
14,250	57,000	.021067	.001500	.....	.....	
14,500	58,000	.022667	.001600			Tensile strength.
14,750	59,000	.023967	.001300	.....	.....	
15,000	60,000	.025800	.001833	.....	.....	
15,500	62,000	.029667	.003867	.....	.....	
16,000	64,000	.033167	.003500	.....	.....	
16,500	66,000	.037667	.004500	.....	.....	
17,000	68,000	.042833	.005166	.....	.....	
17,500	70,000	.049000	.006167	.....	.....	
18,000	72,000	.0567	.0077	.....	.....	
18,500	74,000	.0700	.0133	.....	.....	
19,000	76,000	.0900	.0200	.....	.....	
19,400	77,600	.1300	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	77,600
Elastic limit per square inch of original section	do...	40,000
Elongation per inch after rupture	inch..	0.1900
Elongation per inch under strain at elastic limit	do...	.001333
Reduction in diameter at point of rupture	do...	.174
Reduction in area after rupture, per centum of original section		52.2
Position of rupture	$\frac{1}{2}$ inch from neck; oblique	
Character of broken surface	silky	
Elongation of inch sections	".40", ".09", ".08	

Marks, $\frac{8}{M} \frac{T_{15}}{T_7} M$ Diameter, $\frac{11}{16}$.563.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	-----	
2,500	10,000	.000267	.000167	0.	-----	
3,750	15,000	.000433	.000166	0.	-----	
5,000	20,000	.000600	.000167	0.	-----	
6,250	25,000	.000767	.000167	0.	-----	
7,500	30,000	.000900	.000133	0.	-----	
8,750	35,000	.001067	.000167	0.	-----	
10,000	40,000	.001233	.000166	0.	-----	
10,250	41,000	.001267	.000034	-----	-----	Elastic limit.
10,500	42,000	.001300	.000033	-----	-----	
10,750	43,000	.001367	.000007	-----	-----	
11,000	44,000	.002100	.000733	-----	-----	
11,250	45,000	.004533	.002433	.003100	.003100	
11,500	46,000	.006300	.001767	-----	-----	
11,750	47,000	.006800	.000500	-----	-----	
12,000	48,000	.007867	.001067	-----	-----	
12,250	49,000	.008767	.000900	-----	-----	
12,500	50,000	.009800	.001033	.007933	.004833	
12,750	51,000	.010433	.000633	-----	-----	
13,000	52,000	.011100	.000667	-----	-----	
13,250	53,000	.012133	.001033	-----	-----	
13,500	54,000	.013400	.001267	-----	-----	
13,750	55,000	.014600	.001200	-----	-----	
14,000	56,000	.015867	.001267	-----	-----	
14,250	57,000	.016900	.001033	-----	-----	
14,500	58,000	.018233	.001333	-----	-----	
14,750	59,000	.019200	.000967	-----	-----	
15,000	60,000	.020800	.001600	-----	-----	Tensile strength.
15,500	62,000	.023800	.003000	-----	-----	
16,000	64,000	.026567	.002767	-----	-----	
16,500	66,000	.030267	.003700	-----	-----	
17,000	68,000	.033733	.003466	-----	-----	
17,500	70,000	.038000	.004267	-----	-----	
18,000	72,000	.044667	.006667	-----	-----	
18,500	74,000	.051333	.006666	-----	-----	
19,000	76,000	.0567	.005367	-----	-----	
19,500	78,000	.0700	.0133	-----	-----	
20,000	80,000	.0867	.0167	-----	-----	
20,500	82,000	.1233	.0366	-----	-----	
20,590	82,360	.1500	.0267	-----	-----	

General summary.

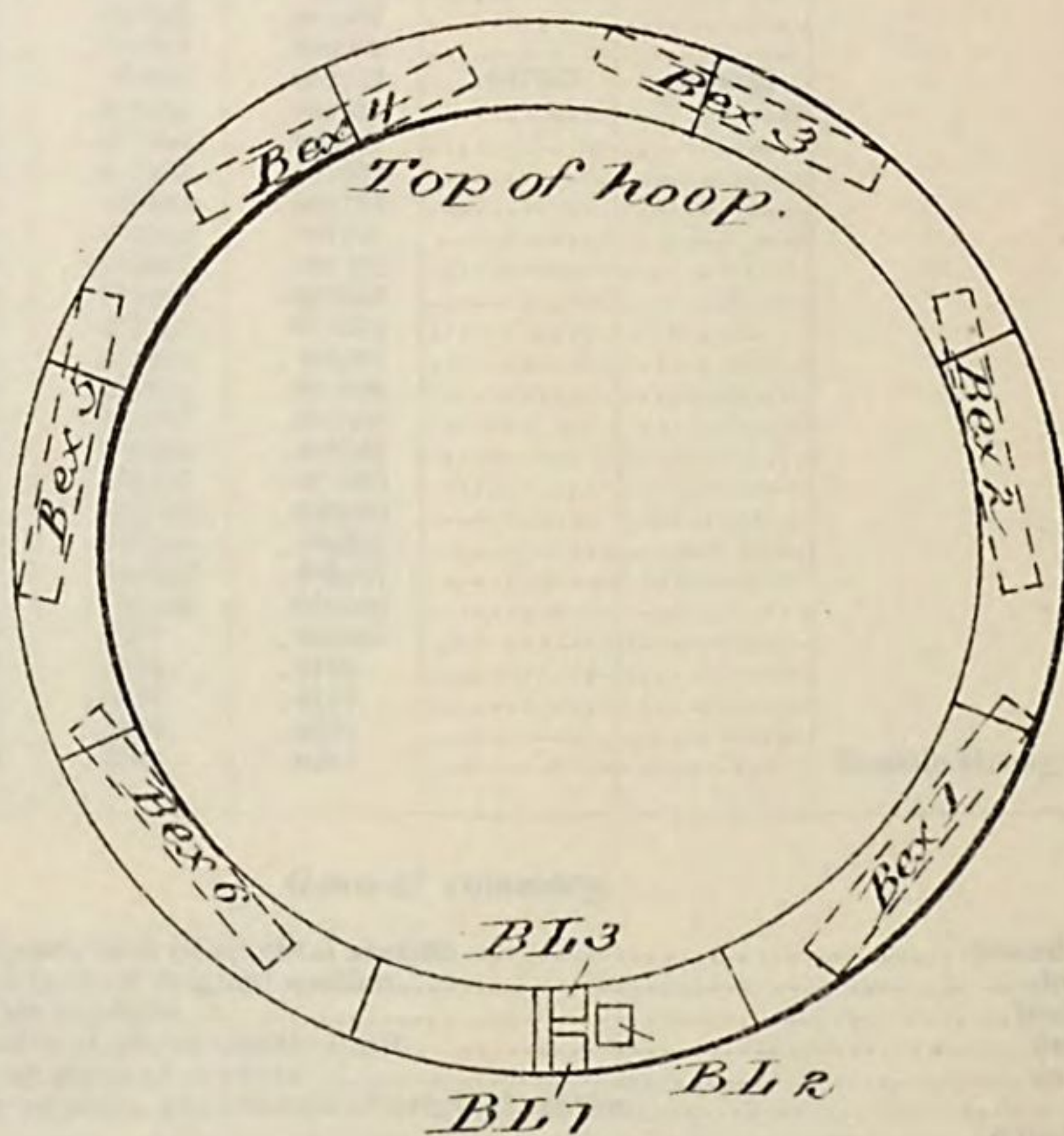
Tensile strength per square inch of original section.....	pounds..	82,360
Elastic limit per square inch of original section.....	do...	43,000
Elongation per inch after rupture.....	inch..	0.2133
Elongation per inch under strain at elastic limit.....	do...	.001367
Reduction in diameter at point of rupture.....	do...	.153
Reduction in area after rupture, per centum of original section.....		47.2
Position of rupture.....	$\frac{5}{8}$ inch from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	.36*, .15, .13	

8" Steel B. L. Rivet

Hoop Dr. Experimental Section

8" Steel B. L. Rifle

Hoop Bx Experimental section



*Three Specimens through
width of hoop.*

H Ex 3 / 49 2

ADDITIONAL SPECIMENS FROM HOOP BX. AFTER UNHOOPING.

No. 2187.

Marks, B L₁

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000367	.000200	0.	.....	
3,750	15,000	.000533	.000166	0.	.....	
5,000	20,000	.000700	.000167	.000033	.000033	
6,250	25,000	.000867	.000167	.000033	0.	
7,500	30,000	.001000	.000133	.000033	0.	
8,750	35,000	.001167	.000167	.000033	0.	
10,000	40,000	.001367	.000200	.000033	0.	
10,250	41,000	.001400	.000033	.....	.....	
10,500	42,000	.001433	.000032			Elastic limit.
10,750	43,000	.001433	0.	.....	.....	
11,000	44,000	.001467	.000034	.....	.....	
11,250	45,000	.001533	.000066	.000033	0.	
11,500	46,000	.001600	.000067	.....	.....	
11,750	47,000	.001667	.000067	.....	.....	
12,000	48,000	.001767	.000100	.....	.....	
12,250	49,000	.002000	.000233	.....	.....	
12,500	50,000	.002467	.000467	.000800	.000767	
12,750	51,000	.002833	.000366	.....	.....	
13,000	52,000	.003167	.000334			Tensile strength.
13,250	53,000	.003633	.000466	.....	.....	
13,500	54,000	.004433	.000800	.....	.....	
13,750	55,000	.005033	.000600	.....	.....	
14,000	56,000	.006233	.001200	.....	.....	
14,250	57,000	.006800	.000567	.....	.....	
14,500	58,000	.007667	.000867	.....	.....	
14,750	59,000	.008267	.000600	.....	.....	
15,000	60,000	.009000	.000733	.....	.....	
15,500	62,000	.010667	.001667	.....	.....	
16,000	64,000	.012167	.001500			Tensile strength.
16,500	66,000	.013833	.001666	.....	.....	
17,000	68,000	.015667	.001834	.....	.....	
17,500	70,000	.017600	.001933	.....	.....	
18,000	72,000	.019333	.001733	.....	.....	
18,500	74,000	.021667	.002334	.....	.....	
19,000	76,000	.024000	.002333	.....	.....	
19,500	78,000	.026333	.002333	.....	.....	
20,000	80,000	.028833	.002500	.....	.....	
20,500	82,000	.031667	.002834	.....	.....	
21,000	84,000	.034667	.003000			Tensile strength.
21,500	86,000	.038167	.003500	.....	.....	
22,000	88,000	.042333	.004166	.....	.....	
22,500	90,000	.047333	.005000	.....	.....	
23,000	92,000	.0533	.005967	.....	.....	
23,500	94,000	.0633	.0100	.....	.....	
24,000	96,000	.0733	.0100	.....	.....	
24,500	98,000	.0933	.0200	.....	.....	
24,810	99,240	.1300	.0367	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	99,240
Elastic limit per square inch of original section	do...	47,000
Elongation per inch after rupture	inch..	0.2000
Elongation per inch under strain at elastic limit	do...	.001667
Reduction in diameter at point of rupture	do...	.104
Reduction in area after rupture, per centum of original section		33.5
Position of rupture	$\frac{1}{8}$ inch from middle of stem	
Character of broken surface	granular; dull spot near circumference	
Elongation of inch sections	".15, ".32*, ".13	

No. 2188.

Marks, B L₂

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	-----	
2,500	10,000	.000333	.000166	0.	-----	
3,750	15,000	.000533	.000200	.000033	.000033	
5,000	20,000	.000767	.000234	.000067	.000034	
6,250	25,000	.000900	.000133	.000067	0.	
7,500	30,000	.001067	.000167	.000067	0.	
8,750	35,000	.001233	.000166	.000067	0.	
10,000	40,000	.001467	.000234	.000100	.000033	
10,250	41,000	.001533	.000066	-----	-----	
10,500	42,000	.001567	.000034	-----	-----	
10,750	43,000	.001600	.000033	-----	-----	
11,000	44,000	.001667	.000067	-----	-----	Elastic limit.
11,250	45,000	.001767	.000100	.000233	.000133	
11,500	46,000	.001900	.000133	-----	-----	
11,750	47,000	.002067	.000167	-----	-----	
12,000	48,000	.002600	.000533	-----	-----	
12,250	49,000	.002900	.000300	-----	-----	
12,500	50,000	.003733	.000833	.001900	.001667	
12,750	51,000	.004167	.000434	-----	-----	
13,000	52,000	.004667	.000500	-----	-----	
13,250	53,000	.005267	.000600	-----	-----	
13,500	54,000	.006000	.000733	-----	-----	
13,750	55,000	.006700	.000700	-----	-----	Tensile strength.
14,000	56,000	.007567	.000867	-----	-----	
14,250	57,000	.008067	.000500	-----	-----	
14,500	58,000	.009000	.000967	-----	-----	
14,750	59,000	.009900	.000900	-----	-----	
15,000	60,000	.010733	.000833	-----	-----	
15,500	62,000	.012233	.001500	-----	-----	
16,000	64,000	.013733	.001500	-----	-----	
16,500	66,000	.015333	.001600	-----	-----	
17,000	68,000	.017167	.001834	-----	-----	
17,500	70,000	.019033	.001866	-----	-----	
18,000	72,000	.021333	.002300	-----	-----	
18,500	74,000	.023333	.002000	-----	-----	
19,000	76,000	.025600	.002267	-----	-----	
19,500	78,000	.028000	.002400	-----	-----	
20,000	80,000	.030733	.002733	-----	-----	
20,500	82,000	.034167	.003434	-----	-----	
21,000	84,000	.037333	.003166	-----	-----	
21,500	86,000	.041333	.004000	-----	-----	
22,000	88,000	.045833	.004500	-----	-----	
22,500	90,000	.054833	.009000	-----	-----	
23,000	92,000	.0633	.008467	-----	-----	
23,500	94,000	.0700	.0067	-----	-----	
24,000	96,000	.0867	.0167	-----	-----	
24,400	97,600	.1267	.0400	-----	-----	

General summary.

Tensile strength per square inch of original section	pounds..	97,600
Elastic limit per square inch of original section	do...	45,000
Elongation per inch after rupture	inch..	0.1733
Elongation per inch under strain at elastic limit	do...	.001767
Reduction in diameter at point of rupture	do...	.094
Reduction in area after rupture, per centum of original section		30.6
Position of rupture	".05 inch from middle of stem	
Character of broken surface	granular; dull spot near circumference	
Elongation of inch sections	".13, ".29*, ".10	

No. 2189.

Marks, B L₃

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000300	.000167	0.	.....	
3,750	15,000	.000467	.000167	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001167	.000200	0.	.....	
10,000	40,000	.001400	.000233	.000100	.000100	
10,250	41,000	.001467	.000067	.....	.....	
10,500	42,000	.001500	.000033	.....	.....	
10,750	43,000	.001567	.000067	.....	.....	
11,000	44,000	.001633	.000066	.....	.....	
11,250	45,000	.001700	.000067	.000200	.000100	
11,500	46,000	.001767	.000067	.....	.....	
11,750	47,000	.001833	.000066	.....	.....	
12,000	48,000	.001933	.001000	.....	.....	
12,250	49,000	.002000	.000067	.....	.....	
12,500	50,000	.002133	.000133	.000433	.000233	Elastic limit not well defined.
12,750	51,000	.002233	.000100	.....	.....	
13,000	52,000	.002367	.000134	.....	.....	
13,250	53,000	.002533	.000166	.....	.....	
13,500	54,000	.002767	.000234	.....	.....	
13,750	55,000	.003167	.000400	.....	.....	
14,000	56,000	.003533	.000366	.....	.....	
14,250	57,000	.004067	.000534	.....	.....	
14,500	58,000	.004700	.000633	.....	.....	
14,750	59,000	.005267	.000567	.....	.....	
15,000	60,000	.006000	.000733	.....	.....	
15,500	62,000	.007667	.001667	.....	.....	
16,000	64,000	.009200	.001533	.....	.....	
16,500	66,000	.010833	.001633	.....	.....	
17,000	68,000	.012400	.001567	.....	.....	
17,500	70,000	.014333	.001933	.....	.....	
18,000	72,000	.016200	.001867	.....	.....	
18,500	74,000	.018000	.001800	.....	.....	
19,000	76,000	.020000	.002000	.....	.....	
19,500	78,000	.022167	.002167	.....	.....	
20,000	80,000	.024533	.002366	.....	.....	
20,500	82,000	.027433	.002900	.....	.....	
21,000	84,000	.030000	.002567	.....	.....	
21,500	86,000	.034667	.004667	.....	.....	
22,000	88,000	.037667	.003000	.....	.....	
22,500	90,000	.042333	.004666	.....	.....	
23,000	92,000	.047333	.005000	.....	.....	
23,500	94,000	.053333	.006000	.....	.....	
24,000	96,000	.0667	.013367	.....	.....	
24,500	98,000	.0767	.0100	.....	.....	
25,000	100,000	.1067	.0300	.....	.....	
25,010	100,040	.1333	.0266			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	100,040
Elastic limit per square inch of original section, not well defined	do...	50,000
Elongation per inch after rupture.....	inch..	0.1700
Elongation per inch under strain at elastic limit	do...	.002133
Reduction in diameter at point of rupture.....	do...	.094
Reduction in area after rupture, per centum of original section.....		30.6
Position of rupture	".30 from middle of stem	
Character of broken surface	granular; dull eccentric spot	
Elongation of inch sections.....	".14, ".25*, ".12	

H. Ex. 31—60

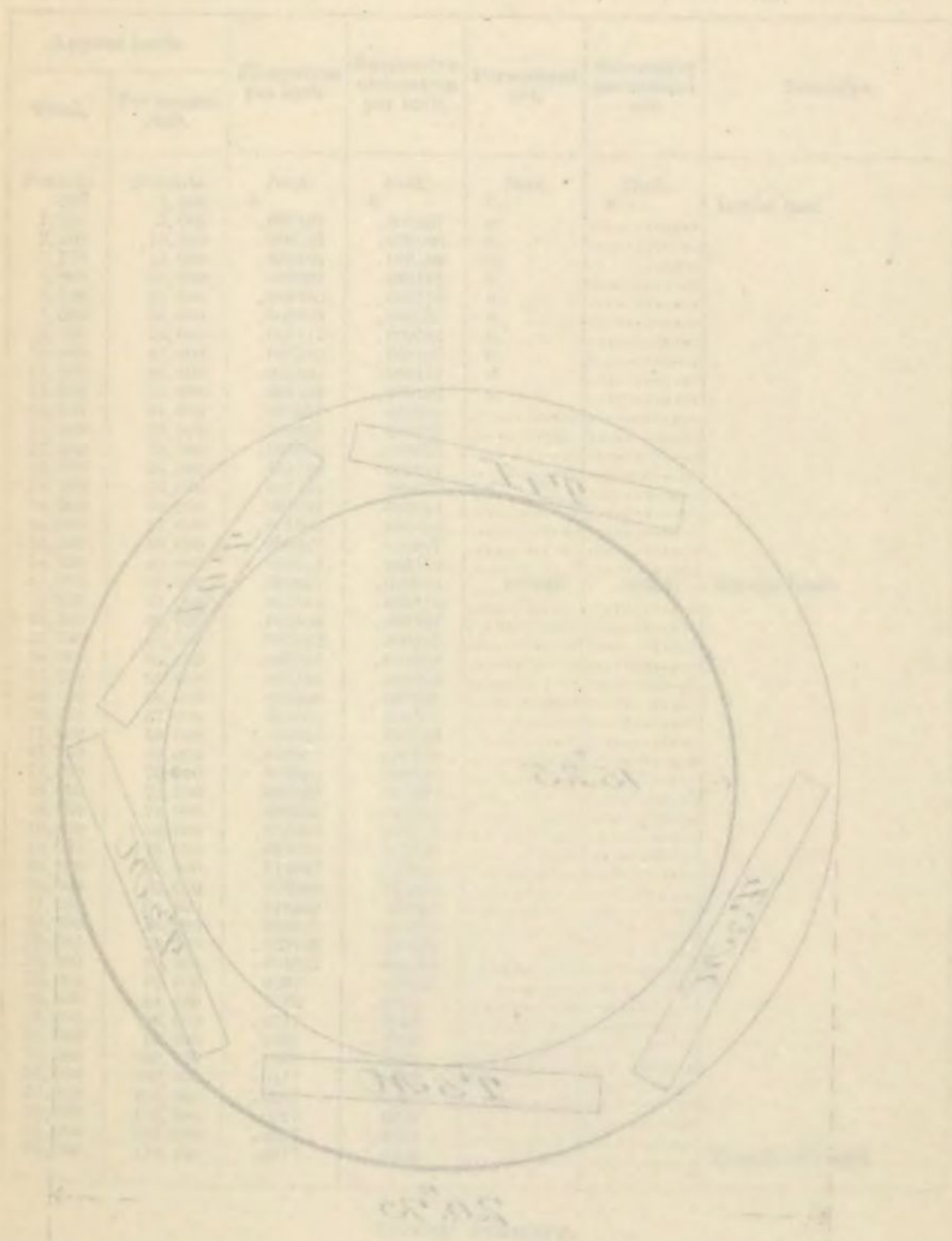
PLATE 45

Fig. 100

Fig. 101

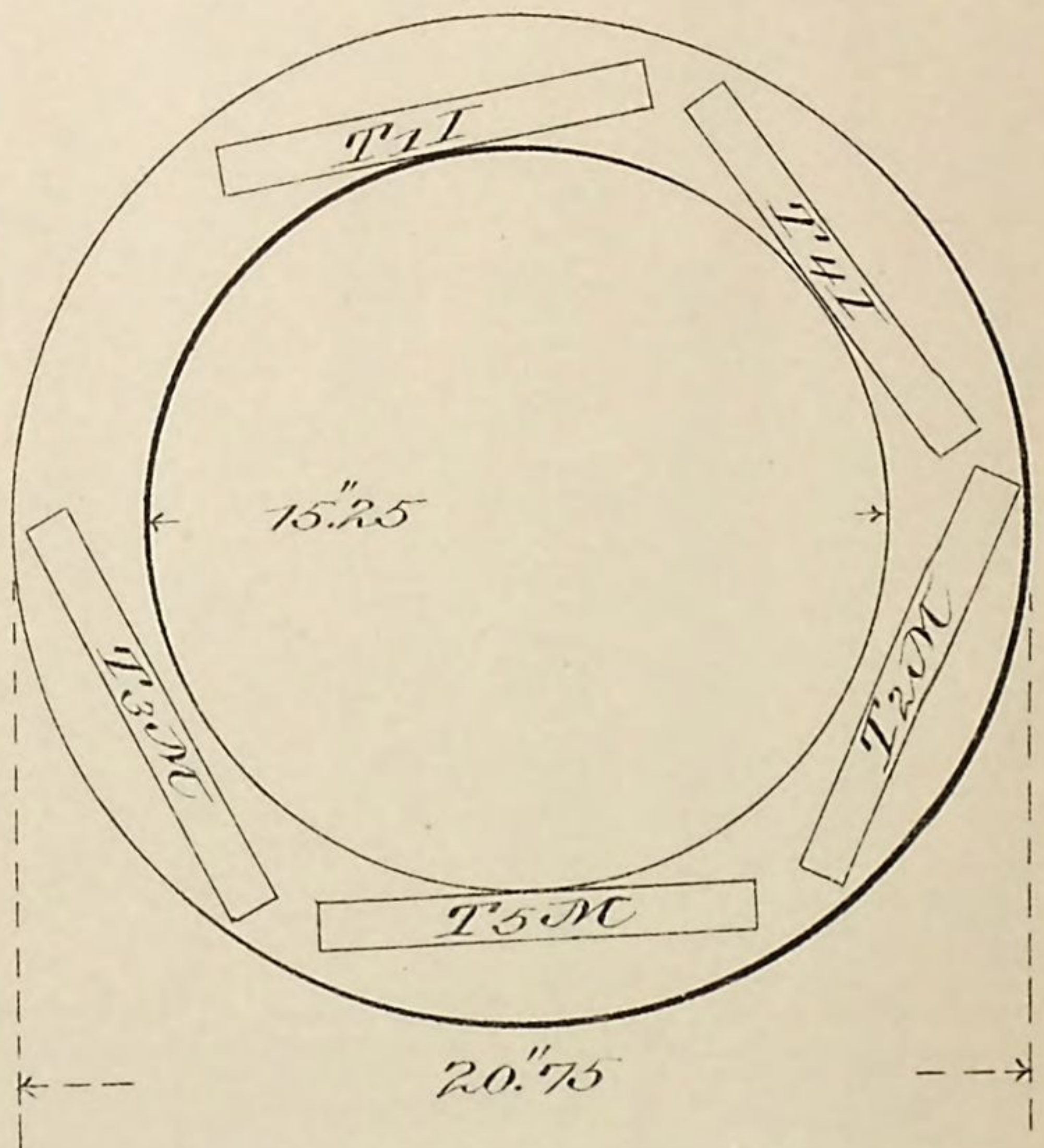
Fig. 102

8" Experimental Hoop



H. Ex. 31 49 5

8" Experimental Hoop



H Ex 3/ 49 2

No. 2322.

Marks, ^{8 Hex}_{T, I}

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000333	.000166	0.	.....	
3,750	15,000	.000483	.000150	0.	.....	
5,000	20,000	.000667	.000184	0.	.....	
6,250	25,000	.000783	.000116	0.	.....	
7,500	30,000	.000933	.000150	0.	.....	
8,750	35,000	.001117	.000184	0.	.....	
10,000	40,000	.001283	.000166	0.	.....	
11,250	45,000	.001400	.000117	0.	.....	
12,500	50,000	.001583	.000183	0.	.....	
12,750	51,000	.001617	.000034	.....	.....	
13,000	52,000	.001650	.000033	.....	.....	
13,250	53,000	.001683	.000033	.....	.....	
13,500	54,000	.001700	.000017	.....	.....	
13,750	55,000	.001733	.000033	0.	.....	
14,000	56,000	.001767	.000034	.....	.....	
14,250	57,000	.001800	.000033	.....	.....	
14,500	58,000	.001867	.000067	.....	.....	
14,750	59,000	.002033	.000166	.....	.....	
15,000	60,000	.002067	.000034	.000067	.000067	Elastic limit.
15,250	61,000	.002183	.000116	.....	.....	
15,500	62,000	.002350	.000167	.....	.....	
15,750	63,000	.002533	.000183	.....	.....	
16,000	64,000	.002767	.000234	.....	.....	
16,250	65,000	.003100	.000333	.....	.....	
16,500	66,000	.003600	.000500	.....	.....	
16,750	67,000	.004183	.000583	.....	.....	
17,000	68,000	.004883	.000700	.....	.....	
17,250	69,000	.005517	.000634	.....	.....	
17,500	70,000	.006500	.000983	.....	.....	
18,000	72,000	.008167	.001667	.....	.....	
18,500	74,000	.009833	.001666	.....	.....	
19,000	76,000	.011383	.001550	.....	.....	
19,500	78,000	.013017	.001634	.....	.....	
20,000	80,000	.014667	.001650	.....	.....	
20,500	82,000	.016500	.001833	.....	.....	
21,000	84,000	.018333	.001833	.....	.....	
21,500	86,000	.020167	.001834	.....	.....	
22,000	88,000	.022167	.002000	.....	.....	
22,500	90,000	.024333	.002166	.....	.....	
23,000	92,000	.0267	.002367	.....	.....	
23,500	94,000	.0283	.0016	.....	.....	
24,000	96,000	.0317	.0034	.....	.....	
24,500	98,000	.0350	.0033	.....	.....	
25,000	100,000	.0383	.0033	.....	.....	
25,500	102,000	.0417	.0034	.....	.....	
26,000	104,000	.0467	.0050	.....	.....	
26,500	106,000	.0517	.0050	.....	.....	
27,000	108,000	.0617	.0100	.....	.....	
27,500	110,000	.0817	.0200	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	110,000
Elastic limit per square inch of original section	do...	60,000
Elongation per inch after rupture	inch..	0.0967
Elongation per inch under strain at elastic limit	do...	.002067
Reduction in diameter at point of rupture	do...	.095
Reduction in area after rupture, per centum of original section		30.6
Position of rupture		".35 from neck
Character of broken surface		granular; dull center
Elongations of inch sections		".20*, ".08, ".08, ".07, ".07, ".08

No. 2323.

Marks, $\frac{8}{T_2} \text{Hex}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000317	.000184	0.	.....	
3,750	15,000	.000467	.000150	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000767	.000134	0.	.....	
7,500	30,000	.000967	.000200	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
10,000	40,000	.001267	.000134	0.	.....	
11,250	45,000	.001450	.000183	0.	.....	
12,500	50,000	.001633	.000183	0.	.....	
12,750	51,000	.001650	.000017	.....	.....	
13,000	52,000	.001683	.000033	.....	.....	
13,250	53,000	.001717	.000034	.....	.....	
13,500	54,000	.001750	.000033			Elastic limit.
13,750	55,000	.001800	.000050	.....	.....	
14,000	56,000	.001883	.000083	.....	.....	
14,250	57,000	.002000	.000117	.....	.....	
14,500	58,000	.002167	.000167	.....	.....	
14,750	59,000	.002400	.000233	.....	.....	
15,000	60,000	.002717	.000317	.....	.....	
15,500	62,000	.003833	.001116	.....	.....	
16,000	64,000	.005083	.001250	.....	.....	
16,500	66,000	.006667	.001584	.....	.....	
17,000	68,000	.008333	.001666	.....	.....	
17,500	70,000	.009833	.001500	.....	.....	
18,000	72,000	.011333	.001500	.....	.....	
18,500	74,000	.013017	.001684	.....	.....	
19,000	76,000	.014850	.001833	.....	.....	
19,500	78,000	.016800	.001950	.....	.....	
20,000	80,000	.018583	.001783	.....	.....	
20,500	82,000	.020200	.001617	.....	.....	
21,000	84,000	.022250	.002050	.....	.....	
21,500	86,000	.024333	.002083	.....	.....	
22,000	88,000	.026667	.002334	.....	.....	
22,500	90,000	.029000	.002333	.....	.....	
23,000	92,000					Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	92,000
Elastic limit per square inch of original section.....	do...	55,000
Elongation per inch after rupture.....	inch..	0.0233
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do...	.024
Reduction in area after rupture, per centum of original section.....		8.4
Position of rupture.....	$\frac{1}{4}$ inch from middle of stem	
Character of broken surface.....	granular, radiating from a point in the circumference	
Elongation of inch sections.....	".02, ".03, ".03*, ".02, ".02, ".02	

No. 2324.

Marks, $\frac{8}{T_3 M}$ Hex

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000083	.000083	0.	.....	
2,500	10,000	.000267	.000184	0.	.....	
3,750	15,000	.000400	.000133	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000717	.000150	0.	.....	
7,500	30,000	.000900	.000183	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
10,000	40,000	.001233	.000166	0.	.....	
11,250	45,000	.001400	.000167	0.	.....	
12,500	50,000	.001583	.000183	0.	.....	
12,750	51,000	.001617	.000034	.....	.....	
13,000	52,000	.001650	.000033	.....	.....	
13,250	53,000	.001683	.000033	.....	.....	
13,500	54,000	.001800	.000117	.....	.....	
13,750	55,000	.001833	.000033	.000017	.000017	
14,000	56,000	.001867	.000034			Elastic limit.
14,250	57,000	.001917	.000050	.....	.....	
14,500	58,000	.002050	.000133	.....	.....	
14,750	59,000	.002167	.000117	.....	.....	
15,000	60,000	.002500	.000333	.....	.....	
15,500	62,000	.003467	.000967	.....	.....	
16,000	64,000	.005333	.001866	.....	.....	
16,500	66,000	.007333	.002000	.....	.....	
17,000	68,000	.009000	.001667	.....	.....	
17,500	70,000	.010850	.001850	.....	.....	
18,000	72,000	.012517	.001667	.....	.....	
18,500	74,000	.014333	.001816	.....	.....	
19,000	76,000	.016167	.001834	.....	.....	
19,500	78,000	.018000	.001833	.....	.....	
20,000	80,000	.020133	.002133	.....	.....	
20,500	82,000	.022250	.002117	.....	.....	
21,000	84,000	.0233	.001050	.....	.....	
21,500	86,000	.0267	.0034	.....	.....	
22,000	88,000	.0300	.0033	.....	.....	
22,500	90,000	.0333	.0033	.....	.....	
23,000	92,000	.0350	.0017	.....	.....	
23,500	94,000	.0400	.0050	.....	.....	
24,000	96,000	.0450	.0050	.....	.....	
24,500	98,000	.0517	.0067	.....	.....	
25,000	100,000	.0600	.0083			Tensile strength.
25,500	102,000	.0750	.0150	.....	.....	
25,990	103,960	.1167	.0417	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	103,960
Elastic limit per square inch of original section.....	do....	57,000
Elongation per inch after rupture.....	inch..	0.1633
Elongation per inch under strain at elastic limit.....	do....	.001917
Reduction in diameter at point of rupture.....	do....	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....	$\frac{1}{2}$ inch from middle of stem	
Character of broken surface.....	granular at circumference; dull center	
Elongation of inch sections.....	".08, ".12, ".36*, ".15, ".15, ".12	

No. 2540.

Marks, ^{8 Hex}_{T₄ I}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000117	.000117	0.	.....	
2,500	10,000	.000250	.000133	0.	.....	
3,750	15,000	.000433	.000183	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000717	.000117	0.	.....	
7,500	30,000	.000883	.000166	0.	.....	
8,750	35,000	.001083	.000200	.....	.....	
10,000	40,000	.001233	.000150	.....	.....	
11,250	45,000	.001417	.000184	.....	.....	
12,500	50,000	.001600	.000183	.....	.....	
12,750	51,000	.001633	.000033	.....	.....	
13,000	52,000	.001667	.000034	.....	.....	
13,250	53,000	.001700	.000033	.....	.....	
13,500	54,000	.001750	.000050	.....	.....	
13,750	55,000	.001783	.000033	.....	.....	
14,000	56,000	.001817	.000034	.....	.....	
14,250	57,000	.001867	.000050	.....	.....	
14,500	58,000	.001950	.000083	.....	.....	
14,750	59,000	.002000	.000050	.....	.....	Elastic limit.
15,000	60,000	.002167	.000167	.....	.....	
15,250	61,000	.002283	.000116	.....	.....	
15,500	62,000	.002567	.000284	.....	.....	
16,000	64,000	.003100	.000533	.....	.....	
16,500	66,000	.003700	.000600	.....	.....	
17,000	68,000	.005167	.001467	.....	.....	
17,500	70,000	.006417	.001250	.....	.....	
18,000	72,000	.007833	.001416	.....	.....	
18,500	74,000	.009333	.001500	.....	.....	
19,000	76,000	.011000	.001667	.....	.....	
19,500	78,000	.012517	.001517	.....	.....	
20,000	80,000	.014167	.001650	.....	.....	
20,500	82,000	.015667	.001500	.....	.....	
21,000	84,000	.017500	.001833	.....	.....	
21,500	86,000	.019333	.001833	.....	.....	
22,000	88,000	.021417	.002084	.....	.....	
22,500	90,000	.0233	.001883	.....	.....	
23,000	92,000	.0250	.0017	.....	.....	
23,500	94,000	.0283	.0033	.....	.....	
24,000	96,000	.0317	.0034	.....	.....	
24,500	98,000	.0350	.0033	.....	.....	
25,000	100,000	.0367	.0017	.....	.....	
25,500	102,000	.0383	.0016	.....	.....	
26,000	104,000	.0450	.0067	.....	.....	
26,500	106,000	.0500	.0050	.....	.....	
27,000	108,000	.0567	.0067	.....	.....	
27,500	110,000	.0700	.0133	.....	.....	
27,550	110,200	.0800	.0100	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	110,200
Elastic limit per square inch of original section.....	do...	59,000
Elongation per inch after rupture.....	inch ..	0.0867
Elongation per inch under strain at elastic limit.....	do...	.002000
Reduction in diameter at point of rupture.....	do...	.094
Reduction in area after rupture, per centum of original section.....		30.6
Position of rupture.....	"	.40 from neck
Character of broken surface.....		granular; dull center
Elongation of inch sections.....	"	.25*, ".06, ".06, ".04, ".05, ".06

No. 2541.

Marks, ⁸ Hex
T₅ M

Diameter, ".564.

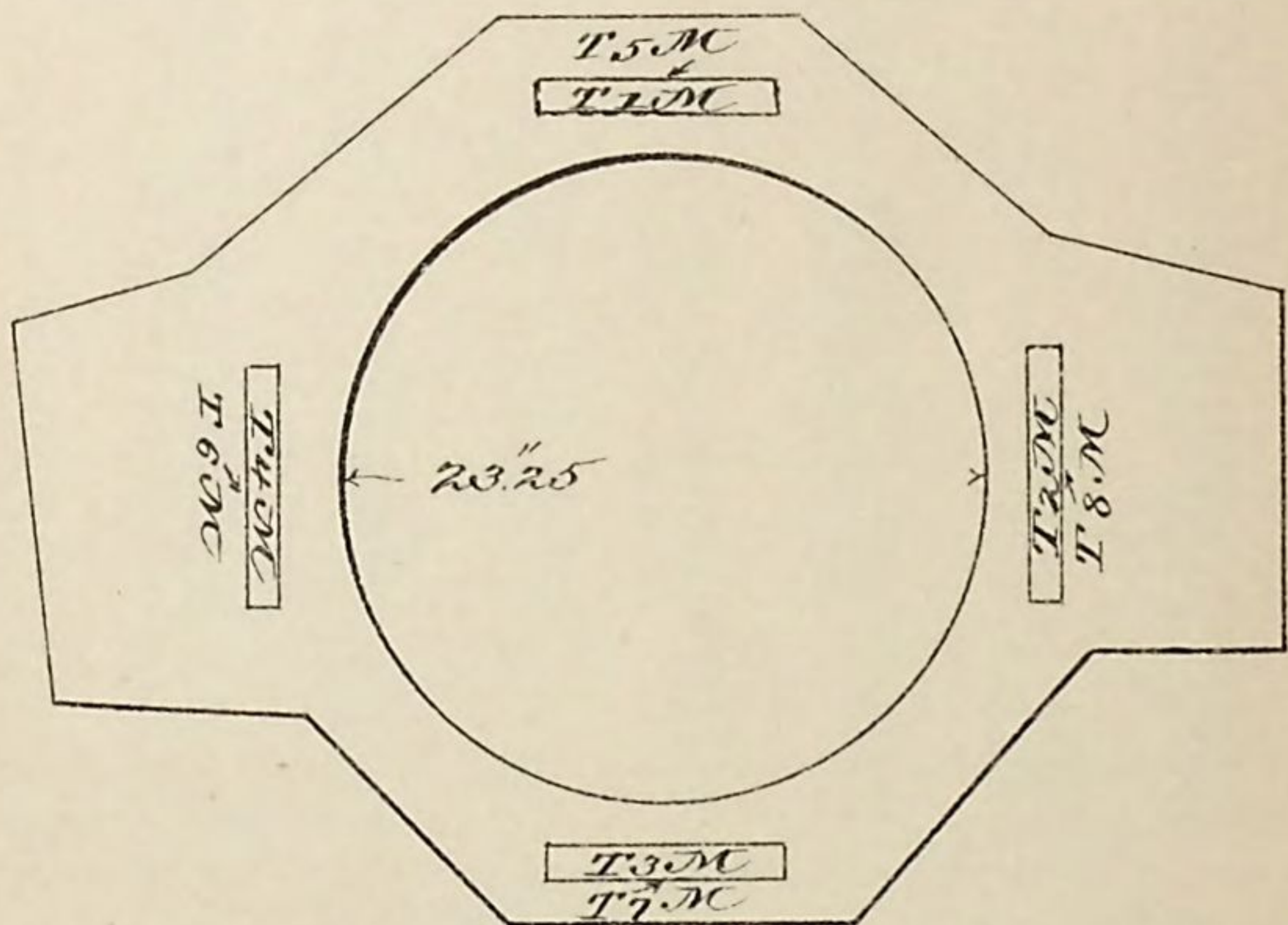
Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000150	.000150	0.	.....	
2,500	10,000	.000317	.000167	0.	.....	
3,750	15,000	.000483	.000166	0.	.....	
5,000	20,000	.000650	.000167	0.	.....	
6,250	25,000	.000833	.000183	0.	.....	
7,500	30,000	.000983	.000150	0.	.....	
8,750	35,000	.001133	.000150	.....	.....	
10,000	40,000	.001300	.000167	.....	.....	
11,250	45,000	.001467	.000167	.....	.....	
12,500	50,000	.001633	.000166	.....	.....	
12,750	51,000	.001667	.000034	.....	.....	
13,000	52,000	.001717	.000050	.....	.....	
13,250	53,000	.001767	.000050	.....	.....	Elastic limit.
13,500	54,000	.001850	.000083	.....	.....	
13,750	55,000	.001967	.000117	.....	.....	
14,000	56,000	.002117	.000150	.....	.....	
14,250	57,000	.002367	.000250	.....	.....	
14,500	58,000	.002717	.000350	.....	.....	
14,750	59,000	.003117	.000400	.....	.....	
15,000	60,000	.003700	.000583	.....	.....	
15,500	62,000	.004917	.001217	.....	.....	
16,000	64,000	.006583	.001666	.....	.....	
16,500	66,000	.008233	.001650	.....	.....	
17,000	68,000	.009717	.001484	.....	.....	
17,500	70,000	.011200	.001483	.....	.....	
18,000	72,000	.012767	.001567	.....	.....	
18,500	74,000	.014667	.001900	.....	.....	
19,000	76,000	.016183	.001516	.....	.....	
19,500	78,000	.017900	.001717	.....	.....	
20,000	80,000	.019867	.001967	.....	.....	
20,500	82,000	.022250	.002383	.....	.....	
21,000	84,000	.024333	.002083	.....	.....	
21,500	86,000	.027000	.002667	.....	.....	
22,000	88,000	.029000	.002000	.....	.....	
22,500	90,000	.0333	.0043	.....	.....	
23,000	92,000	.0350	.0017	.....	.....	
23,500	94,000	.0400	.0050	.....	.....	
24,000	96,000	.0433	.0033	.....	.....	
24,500	98,000	.0483	.0050	.....	.....	
25,000	100,000	.0533	.0050	.....	.....	
25,500	102,000	.0650	.0117	.....	.....	
26,000	104,000	.0783	.0133	.....	.....	
26,060	104,240	.0900	.0117	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	104,240
Elastic limit per square inch of original section.....	do..	53,000
Elongation per inch after rupture.....	*inch..	0.1133
Elongation per inch under strain at elastic limit.....	do..	.001767
Reduction in diameter at point of rupture.....	do..	.114
Reduction in area after rupture, per centum of original section.....		36.4
Position of rupture.....	1 inch from neck	
Character of broken surface.....	granular; dull center	
Elongation of inch sections.....	".27*, ".13, ".10, ".05, ".06, ".07	

8" experimental Trunnion Hoop.



No. 2046.

Marks, $\frac{8T}{T_1M}$ Hex

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
Pounds.	Pounds.	Inch.	Inch.	Inch.	Inch.	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000117	.000117	0.	.....	
2,500	10,000	.000283	.000166	0.	.....	
3,750	15,000	.000450	.000167	0.	.....	
5,000	20,000	.000617	.000167	0.	.....	
6,250	25,000	.000783	.000166	0.	.....	
7,500	30,000	.000933	.000150	0.	.....	
8,750	35,000	.001083	.000150	0.	.....	
10,000	40,000	.001250	.000167	0.	.....	
11,250	45,000	.001433	.000183	0.	.....	
11,500	46,000	.001467	.000034	.....	.....	
11,750	47,000	.001500	.000033	.....	.....	
12,000	48,000	.001533	.000033	.....	.....	
12,250	49,000	.001567	.000034	.....	.....	
12,500	50,000	{ .001617	.000050 }	.002217	.002217	Elastic limit.
		{ .003950	.002333 }			
12,750	51,000	.005167	.001217	.....	.....	
13,000	52,000	.007917	.002750	.....	.....	
13,250	53,000	.009000	.001083	.....	.....	
13,500	54,000	.010167	.001167	.....	.....	
13,750	55,000	.011500	.001333	.....	.....	
14,000	56,000	.012017	.000517	.....	.....	
14,250	57,000	.012567	.000550	.....	.....	
14,500	58,000	.013533	.000966	.....	.....	
14,750	59,000	.014350	.000817	.....	.....	
15,000	60,000	.015517	.001167	.....	.....	
15,500	62,000	.017500	.001983	.....	.....	
16,000	64,000	.019667	.002167	.....	.....	
16,500	66,000	.021917	.002250	.....	.....	
17,000	68,000	.024500	.002583	.....	.....	
17,500	70,000	.027167	.002667	.....	.....	
18,000	72,000	.030167	.003000	.....	.....	
18,500	74,000	.0333	.003133	.....	.....	
19,000	76,000	.0367	.0034	.....	.....	
19,500	78,000	.0433	.0066	.....	.....	
20,000	80,000	.0467	.0034	.....	.....	
20,500	82,000	.0517	.0050	.....	.....	
21,000	84,000	.0600	.0083	.....	.....	
21,500	86,000	.0700	.0100	.....	.....	
22,000	88,000	.0850	.0150	.....	.....	
22,500	90,000	.1133	.0283	.....	.....	
22,610	90,440	.1517	.0384	.....	.....	Tensile strength.

General summary.

Specific gravity.....	7.8501
Hardness	16.56
Tensile strength per square inch of original section.....pounds..	90,440
Elastic limit per square inch of original section.....do..	50,000
Elongation per inch after rupture.....inch..	0.1917
Elongation per inch under strain at elastic limit.....do..	.001617
Reduction in diameter at point of rupture.....do..	.165
Reduction in area after rupture, per centum of original section	49.7
Position of rupture	".95 from neck
Character of broken surface.....	silky, interspersed with fine granulation
Elongation of inch sections.....	".39*, ".19, ".14, ".15, ".15, ".13

No. 2329.

Marks, ^{8 T Hex}
_{T₂ M}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
10,000	40,000	.001267	.000167	0.	.....	
11,250	45,000	.001400	.000133	0.	.....	
11,500	46,000	.001433	.000033	.....	.....	
11,750	47,000	.001467	.000034	.....	.....	
12,000	48,000	.001517	.000050	.....	.....	
12,250	49,000	.001567	.000050	.....	.....	
12,500	50,000	.001633	.000066	.000033	.000033	
12,750	51,000	.001667	.000034	.....	.....	
13,000	52,000	.001700	.000033	.....	.....	
13,250	53,000	.001733	.000033	.....	.....	
13,500	54,000	.001783	.000050	.....	.....	
13,750	55,000	.001817	.000034	.....	.....	Elastic limit.
14,000	56,000	.003250	.001433	.....	.....	
14,250	57,000	.007667	.004417	.....	.....	
14,500	58,000	.008667	.001000	.....	.....	
14,750	59,000	.009333	.000666	.....	.....	
15,000	60,000	.010083	.000750	.....	.....	
15,500	62,000	.011667	.001584	.....	.....	
16,000	64,000	.013583	.001916	.....	.....	
16,500	66,000	.015683	.002100	.....	.....	
17,000	68,000	.017750	.002067	.....	.....	
17,500	70,000	.019833	.002083	.....	.....	
18,000	72,000	.022167	.002334	.....	.....	
18,500	74,000	.024867	.002700	.....	.....	
19,000	76,000	.027667	.002800	.....	.....	
19,500	78,000	.030667	.003000	.....	.....	
20,000	80,000	.0350	.004333	.....	.....	
20,500	82,000	.0383	.0033	.....	.....	
21,000	84,000	.0433	.0050	.....	.....	
21,500	86,000	.0500	.0067	.....	.....	
22,000	88,000	.0567	.0067	.....	.....	
22,500	90,000	.0667	.0100	.....	.....	
23,000	92,000	.0867	.0200	.....	.....	
23,400	93,600	.1333	.0466	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	93,600
Elastic limit per square inch of original section.....	do...	55,000
Elongation per inch after rupture.....	inch..	0.1762
Elongation per inch under strain at elastic limit.....	do...	.001817
Reduction in diameter at point of rupture.....	do...	.114
Reduction in area after rupture, per centum of original section.....		36.4
Position of rupture.....	".35 from middle of stem	
Character of broken surface.....	granular, 60 per centum; silky, 40 per centum	
Elongation of inch sections.....	".12, ".16, ".35*, ".18, ".14. ".1.	

No. 2330.

Marks, $\frac{8}{T_3} \frac{T}{M} \text{Hex}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000367	.000234	0.	.....	
3,750	15,000	.000517	.000150	0.	.....	
5,000	20,000	.000667	.000150	0.	.....	
6,250	25,000	.000850	.000183	0.	.....	
7,500	30,000	.001017	.000167	0.	.....	
8,750	35,000	.001183	.000166	0.	.....	
10,000	40,000	.001350	.000167	0.	.....	
11,250	45,000	.001500	.000150	0.	.....	
11,500	46,000	.001533	.000033	.....	.....	
11,750	47,000	.001567	.000034	.....	.....	
12,000	48,000	.001583	.000016	.....	.....	
12,250	49,000	.001617	.000034	.....	.....	
12,500	50,000	.001667	.000050	.....	.....	
12,750	51,000	.001700	.000033	.....	.....	
13,000	52,000	.001717	.000017	.....	.....	
13,250	53,000	.001750	.000033	.....	.....	
13,500	54,000	.001800	.000050	.....	.....	Elastic limit.
13,750	55,000	.002233	.000433	.....	.....	
14,000	56,000	.014017	.011784	.....	.....	
14,250	57,000	.014250	.000233	.....	.....	
14,500	58,000	.014833	.000583	.....	.....	
14,750	59,000	.015750	.000917	.....	.....	
15,000	60,000	.016750	.001000	.....	.....	
15,500	62,000	.018917	.002167	.....	.....	
16,000	64,000	.021333	.002416	.....	.....	
16,500	66,000	.023833	.002500	.....	.....	
17,000	68,000	.026500	.002667	.....	.....	
17,500	70,000	.029417	.002917	.....	.....	
18,000	72,000	.0317	.002283	.....	.....	
18,500	74,000	.0350	.0033	.....	.....	
19,000	76,000	.0383	.0033	.....	.....	
19,500	78,000	.0450	.0067	.....	.....	
20,000	80,000	.0500	.0050	.....	.....	
20,500	82,000	.0600	.0100	.....	.....	
21,000	84,000	.0667	.0067	.....	.....	
21,500	86,000	.0800	.0133	.....	.....	
22,000	88,000	.1000	.0200	.....	.....	
22,400	89,600	.1600	.0600	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	89,600
Elastic limit per square inch of original section.....	do...	54,000
Elongation per inch after rupture.....	inch..	0.2217
Elongation per inch under strain at elastic limit.....	do...	.001800
Reduction in diameter at point of rupture.....	do...	.184
Reduction in area after rupture, per centum of original section.....		54.6
Position of rupture.....	1 inch from middle of stem	
Character of broken surface.....	fine silky	
Elongation of inch sections.....	".15, ".24, ".42*, ".17, ".18, ".17	

No. 2331.

Marks, $\frac{8}{T_4} \frac{T_{Hex}}{M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000183	.000183	0.	.....	
2,500	10,000	.000333	.000150	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
10,000	40,000	.001350	.000183	0.	.....	
11,250	45,000	.001500	.000151	0.	.....	
12,500	50,000	.001667	.000167	0.	.....	
12,750	51,000	.001700	.000033	.....	.....	
13,000	52,000	.001733	.000033	.....	.....	
13,250	53,000	.001783	.000050	.....	.....	
13,500	54,000	.001833	.000050	.....	.....	
13,750	55,000	.001867	.000034			Elastic limit.
14,000	56,000	.001917	.000050	.....	.....	
14,250	57,000	.001950	.000033	.....	.....	
14,500	58,000	.008833	.006883	.....	.....	
14,750	59,000	.009200	.000367	.....	.....	
15,000	60,000	.010017	.000817	.....	.....	
15,500	62,000	.011750	.001733	.....	.....	
16,000	64,000	.014000	.002250	.....	.....	
16,500	66,000	.015750	.001750	.....	.....	
17,000	68,000	.018333	.002583	.....	.....	
17,500	70,000	.020000	.001667	.....	.....	
18,000	72,000	.022333	.002333	.....	.....	
18,500	74,000	.025000	.002667	.....	.....	
19,000	76,000	.027667	.002667	.....	.....	
19,500	78,000	.030833	.003166	.....	.....	
20,000	80,000	.034167	.003334			Tensile strength.
20,500	82,000	.0367	.002533	.....	.....	
21,000	84,000	.0417	.0050	.....	.....	
21,500	86,000	.0500	.0083	.....	.....	
22,000	88,000	.0550	.0050	.....	.....	
22,500	90,000	.0667	.0117	.....	.....	
23,000	92,000	.0833	.0166	.....	.....	
23,480	93,920	.1350	.0517	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	93,920
Elastic limit per square inch of original section.....	do...	57,000
Elongation per inch after rupture.....	inch..	0.1800
Elongation per inch under strain at elastic limit.....	do...	.001950
Reduction in diameter at point of rupture.....	do...	.164
Reduction in area after rupture, per centum of original section.....		49.7
Position of rupture.....	at middle of stem	
Character of broken surface.....	silky; traces of granulation	
Elongation of inch sections.....	".12, ".13, ".24, ".32*, ".15, ".12	

No. 2325.

Marks, $\frac{8T}{T_5 M}$ Hex

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000117	.000117	0.	.....	
2,500	10,000	.000317	.000200	0.	.....	
3,750	15,000	.000467	.000150	0.	.....	
5,000	20,000	.000650	.000183	0.	.....	
6,250	25,000	.000783	.000133	0.	.....	
7,500	30,000	.000983	.000200	0.	.....	
8,750	35,000	.001133	.000150	0.	.....	
10,000	40,000	.001333	.000200	0.	.....	
11,250	45,000	.001533	.000200	.....	.....	
11,500	46,000	.001583	.000050			Elastic limit.
11,750	47,000	.011833	.010250	.....	.....	
12,000	48,000	.012333	.000500	.....	.....	
12,250	49,000	.012767	.000434	.....	.....	
12,500	50,000	.013417	.000650	.....	.....	
12,750	51,000	.014000	.000583	.....	.....	
13,000	52,000	.014850	.000850	.....	.....	
13,250	53,000	.015683	.000833	.....	.....	
13,500	54,000	.016933	.001250	.....	.....	
13,750	55,000	.017833	.000900	.....	.....	
14,000	56,000	.018967	.001134	.....	.....	
14,250	57,000	.019750	.000783	.....	.....	
14,500	58,000	.021000	.001250	.....	.....	
14,750	59,000	.021867	.000867	.....	.....	
15,000	60,000	.022917	.001050	.....	.....	
15,500	62,000	.025500	.002583	.....	.....	
16,000	64,000	.027917	.002417	.....	.....	
16,500	66,000	.0300	.002083	.....	.....	
17,000	68,000	.0333	.0033	.....	.....	
17,500	70,000	.0367	.0034	.....	.....	
18,000	72,000	.0417	.0050	.....	.....	
18,500	74,000	.0467	.0050	.....	.....	
19,000	76,000	.0517	.0050	.....	.....	
19,500	78,000	.0567	.0050	.....	.....	
20,000	80,000	.0650	.0083	.....	.....	
20,500	82,000	.0767	.0117	.....	.....	
21,000	84,000	.0900	.0133	.....	.....	
21,500	86,000	.1150	.0250	.....	.....	
21,750	87,000	.1550	.0400			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	87,000
Elastic limit per square inch of original section.....	do...	46,000
Elongation per inch after rupture.....	inch..	0.2033
Elongation per inch under strain at elastic limit.....	do...	.001583
Reduction in diameter at point of rupture.....	do...	.175
Reduction in area after rupture, per centum of original section.....		52.2
Position of rupture.....	at middle of stem	
Character of broken surface.....	fine silky	
Elongation of inch sections.....	".12, ".16, ".30, ".37*, ".15, ".12	

No. 2326.

Marks, ^{8 T Hex}
_{T_c M}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	— .000033	— .000033	
2,500	10,000	.000250	.000150	— .000033	0.	
3,750	15,000	.000400	.000150	— .000033	0.	
5,000	20,000	.000567	.000167	— .000033	0.	
6,250	25,000	.000733	.000166	— .000033	0.	
7,500	30,000	.000900	.000167	— .000033	0.	
8,750	35,000	.001067	.000167	— .000033	0.	
10,000	40,000	.001250	.000183	— .000033	0.	
11,250	45,000	.001400	.000150	— .000033	0.	
11,500	46,000	.001417	.000017			Elastic limit.
11,750	47,000	.001467	.000050	.....	.....	
12,000	48,000	.001567	.000100	.....	.....	
12,250	49,000	.004233	.002666	.....	.....	
12,500	50,000	.006167	.001934	.....	.....	
12,750	51,000	.008033	.001916	.....	.....	
13,000	52,000	.009183	.001100	.....	.....	
13,250	53,000	.010083	.000900	.....	.....	
13,500	54,000	.011167	.001084	.....	.....	
13,750	55,000	.012000	.000833	.....	.....	
14,000	56,000	.013000	.001000	.....	.....	
14,250	57,000	.013767	.000767	.....	.....	
14,500	58,000	.014750	.000983	.....	.....	
14,750	59,000	.015750	.001000	.....	.....	
15,000	60,000	.016917	.001167			Tensile strength.
15,500	62,000	.019100	.002183	.....	.....	
16,000	64,000	.021267	.002167	.....	.....	
16,500	66,000	.023750	.002483	.....	.....	
17,000	68,000	.026333	.002583	.....	.....	
17,500	70,000	.029167	.002834	.....	.....	
18,000	72,000	.032250	.003083	.....	.....	
18,500	74,000	.0367	.004450	.....	.....	
19,000	76,000	.0400	.0033	.....	.....	
19,500	78,000	.0450	.0050	.....	.....	
20,000	80,000	.0500	.0050	.....	.....	
20,500	82,000	.0567	.0067	.....	.....	
21,000	84,000	.0667	.0100	.....	.....	
21,500	86,000	.0817	.0150	.....	.....	
22,000	88,000	.1067	.0250	.....	.....	
22,250	89,000	.1467	.0400	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	89,000
Elastic limit per square inch of original section	do...	47,000
Elongation per inch after rupture	inch..	0.1750
Elongation per inch under strain at elastic limit	do...	.001467
Reduction in diameter at point of rupture	do...	.114
Reduction in area after rupture, per centum of original section		36.4
Position of rupture		".75 from neck
Character of broken surface	granular, 50 per centum; silky, 50 per centum	
Elongation of inch sections	".17, ".14, ".14, ".12, ".16, ".32*	

No. 2327.

Marks, ^{8 T Hex}
_{T, M}

Diameter, ".565.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000317	.000184	0.	.....	
3,750	15,000	.000467	.000150	0.	.....	
5,000	20,000	.000650	.000183	0.	.....	
6,250	25,000	.000817	.000167	0.	.....	
7,500	30,000	.000983	.000166	0.	.....	
8,750	35,000	.001150	.000167	0.	.....	
10,000	40,000	.001317	.000167	0.	.....	
10,250	41,000	.001350	.000033	.....	.....	
10,500	42,000	.001400	.000050	.....	.....	Elastic limit.
10,750	43,000	.001433	.000033	.....	.....	
11,000	44,000	.001567	.000134	.....	.....	
11,250	45,000	.009667	.008100	.....	.....	
11,500	46,000	.010500	.000833	.....	.....	
11,750	47,000	.011033	.000533	.....	.....	
12,000	48,000	.011867	.000834	.....	.....	
12,250	49,000	.012517	.000650	.....	.....	
12,500	50,000	.013333	.000816	.....	.....	
13,000	52,000	.015250	.001917	.....	.....	
13,500	54,000	.017167	.001917	.....	.....	
14,000	56,000	.019167	.002000	.....	.....	
14,500	58,000	.021083	.001916	.....	.....	
15,000	60,000	.023300	.002217	.....	.....	
15,500	62,000	.025333	.002033	.....	.....	
16,000	64,000	.027833	.002500	.....	.....	
16,500	66,000	.030533	.002700	.....	.....	
17,000	68,000	.0333	.002767	.....	.....	
17,500	70,000	.0367	.0034	.....	.....	
18,000	72,000	.0400	.0033	.....	.....	
18,500	74,000	.0450	.0050	.....	.....	
19,000	76,000	.0500	.0050	.....	.....	
19,500	78,000	.0550	.0050	.....	.....	
20,000	80,000	.0633	.0083	.....	.....	
20,500	82,000	.0733	.0100	.....	.....	
21,000	84,000	.0867	.0134	.....	.....	
21,500	86,000	.1083	.0216	.....	.....	
21,850	87,400	.1600	.0517	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	87,400
Elastic limit per square inch of original section	do...	43,003
Elongation per inch after rupture	inch..	0.1983
Elongation per inch under strain at elastic limit	do...	.001435
Reduction in diameter at point of rupture	do...	.152
Reduction in area after rupture, per centum of original section		47.
Position of rupture	1½ inches from middle of stem	
Character of broken surface	silky	
Elongation of inch sections	".11, ".14, ".16, ".22, ".42", ".14	

No. 2328.

Marks, ^{8 T Hex}_{T₈ M}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000283	.000183	0.	.....	
3,750	15,000	.000450	.000167	0.	.....	
5,000	20,000	.000617	.000167	0.	.....	
6,250	25,000	.000783	.000166	0.	.....	
7,500	30,000	.000950	.000167	0.	.....	
8,750	35,000	.001133	.000183	0.	.....	
10,000	40,000	.001283	.000150	0.	.....	
11,250	45,000	.001450	.000167	0.	.....	
11,500	46,000	.001483	.000033	.....	.....	Elastic limit.
11,750	47,000	.001567	.000084	.....	.....	
12,000	48,000	.001633	.000066	.....	.....	
12,250	49,000	.003550	.001917	.....	.....	
12,500	50,000	.004417	.000867	.....	.....	
13,000	52,000	.007917	.003500	.....	.....	
13,500	54,000	.010417	.002500	.....	.....	
14,000	56,000	.012167	.001750	.....	.....	
14,500	58,000	.013917	.001750	.....	.....	
15,000	60,000	.015933	.002016	.....	.....	
15,500	62,000	.018000	.002067	.....	.....	
16,000	64,000	.020000	.002000	.....	.....	
16,500	66,000	.022500	.002500	.....	.....	
17,000	68,000	.025000	.002500	.....	.....	
17,500	70,000	.027750	.002750	.....	.....	
18,000	72,000	.031000	.003250	.....	.....	
18,500	74,000	.034250	.003250	.....	.....	
19,000	76,000	.0367	.002450	.....	.....	
19,500	78,000	.0433	.0066	.....	.....	
20,000	80,000	.0483	.0050	.....	.....	
20,500	82,000	.0533	.0050	.....	.....	
21,000	84,000	.0617	.0084	.....	.....	
21,500	86,000	.0750	.0133	.....	.....	
22,000	88,000	.0883	.0133	.....	.....	
22,240	88,960	.1133	.0250	.....	.....	Tensile strength.

General summary.

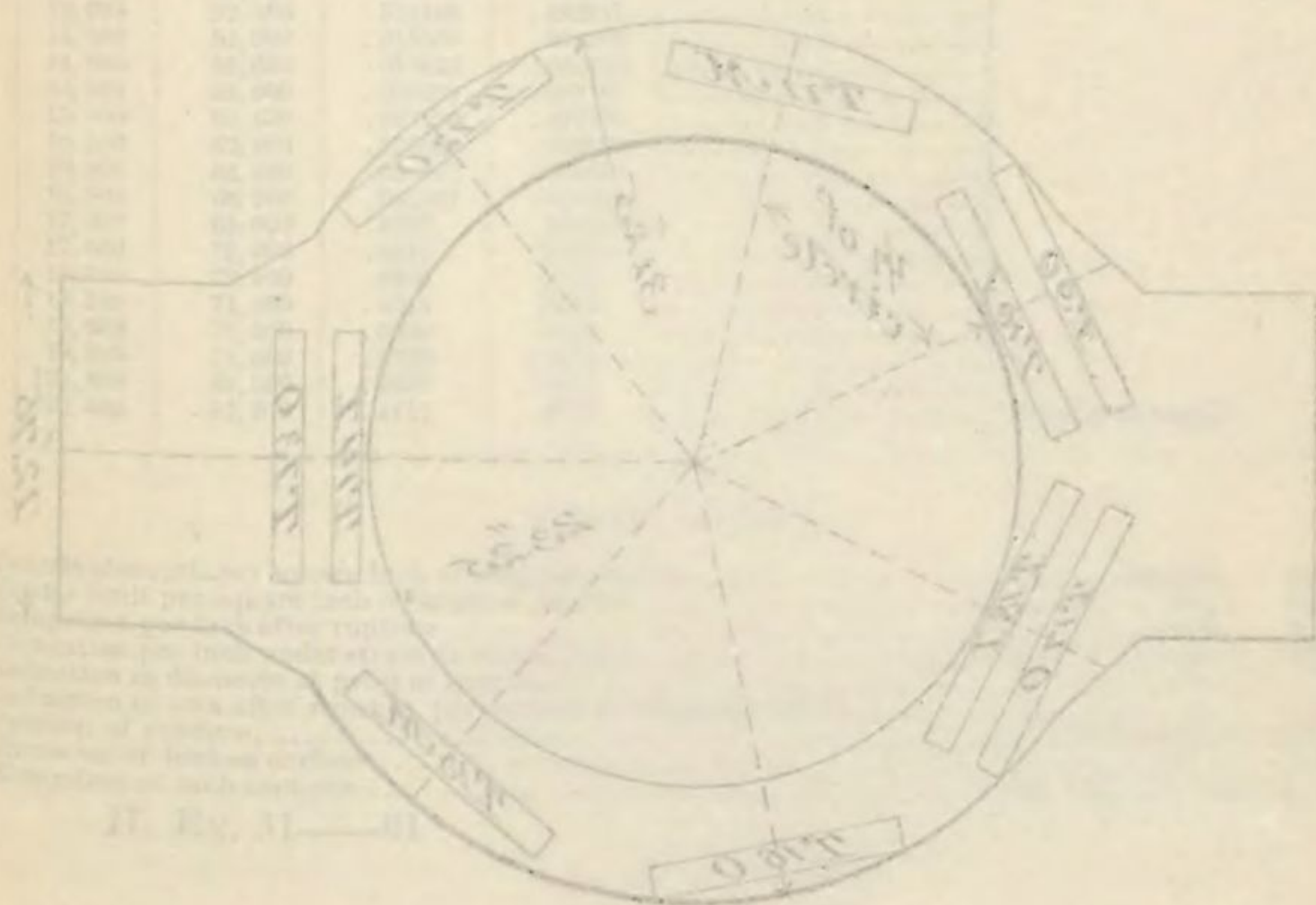
Tensile strength per square inch of original section.....	pounds..	88,960
Elastic limit per square inch of original section	do...	46,000
Elongation per inch after rupture.....	inch ..	0.1450
Elongation per inch under strain at elastic limit	do...	.001483
Reduction in diameter at point of rupture	do...	.154
Reduction in area after rupture, per centum of original section.....		47.2
Position of rupture.....	$\frac{3}{4}$ inch from neck	
Character of broken surface	silky	
Elongation of inch sections.....	".39*, ".13, ".10, ".08, ".08, ".09	

PLATE 1577.

8 Experimental Transverse Hoop.

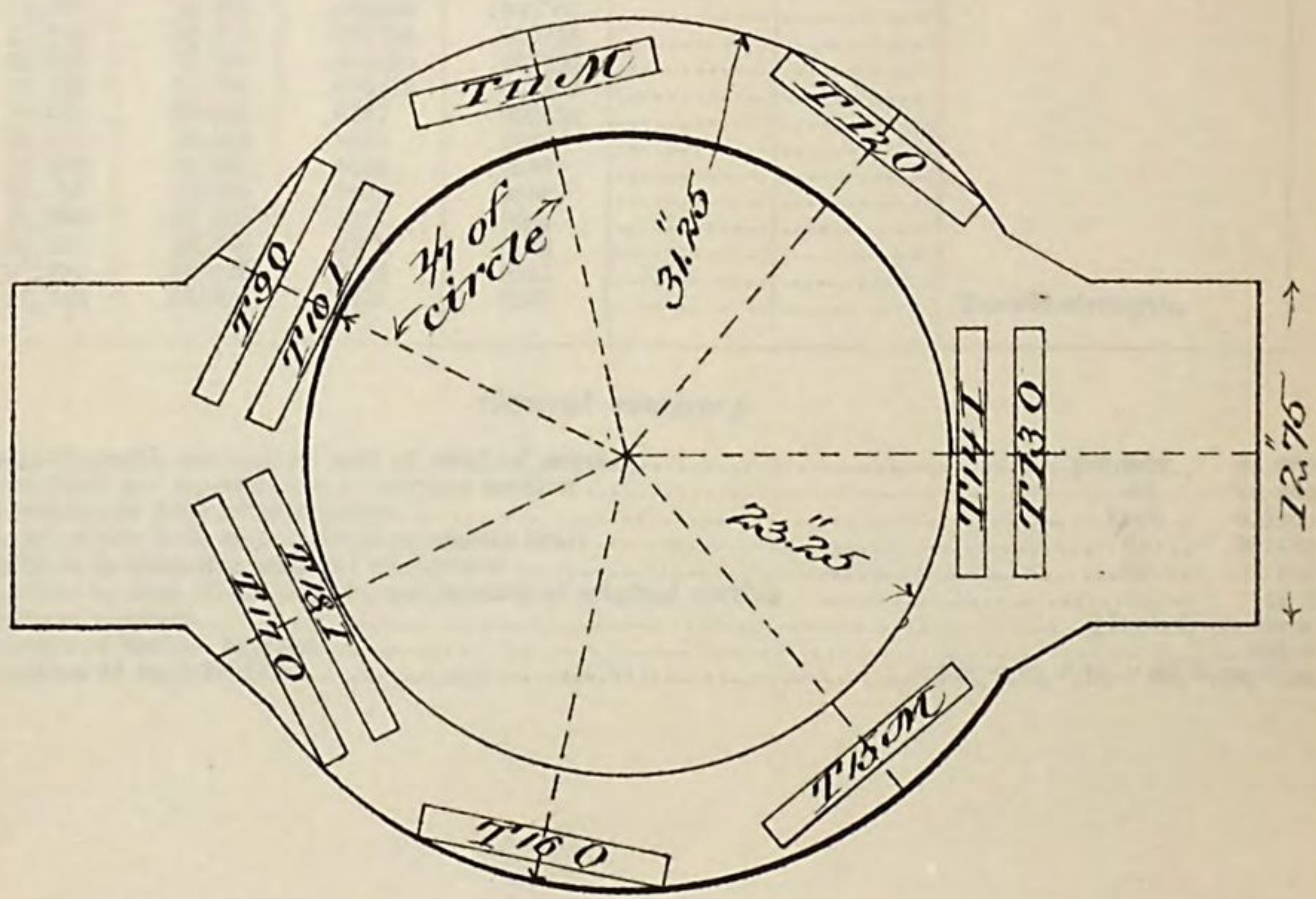
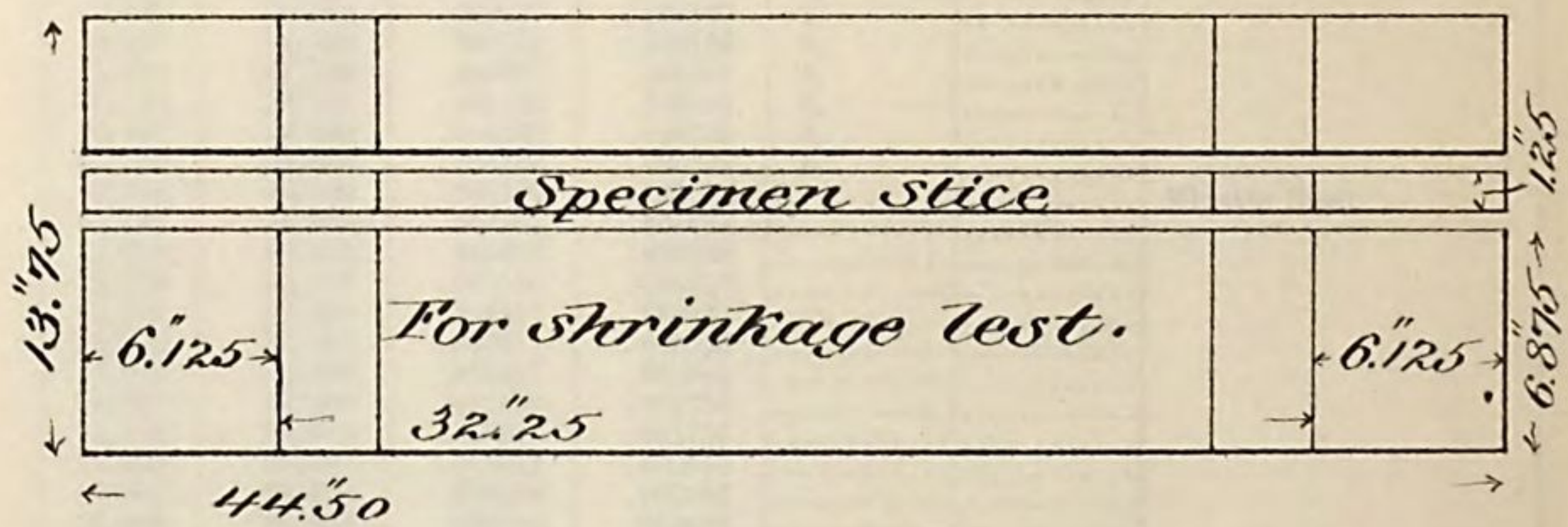
Section of, see diagram

Applied loads		Displacement		Stress		Strain	
Load	Per unit area	Per unit length	Per unit area	Per unit length	Per unit area	Per unit length	Per unit area
100	100	100	100	100	100	100	100
200	200	200	200	200	200	200	200
300	300	300	300	300	300	300	300
400	400	400	400	400	400	400	400
500	500	500	500	500	500	500	500
600	600	600	600	600	600	600	600
700	700	700	700	700	700	700	700
800	800	800	800	800	800	800	800
900	900	900	900	900	900	900	900
1000	1000	1000	1000	1000	1000	1000	1000
Specimen size							
For shrinkage test							
Size							



H Ex 31 40 2

8" experimental Trunnion Hoop.



No. 2577.

Marks, $\frac{8}{T_9} \frac{T}{O} \text{Hex}$ Diameter, $\frac{1}{2}$ inch.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000783	.000183	0.	.....	
7,500	30,000	.000950	.000167	0.	.....	
8,750	35,000	.001133	.000183	.....	.....	
9,000	36,000	.001167	.000034	.....	.....	
9,250	37,000	.001200	.000033			Elastic limit.
9,500	38,000	.001233	.000033	.....	.....	
9,750	39,000	.001267	.000034	.....	.....	
10,000	40,000	.001317	.000050	.....	.....	
10,250	41,000	.001367	.000050	.....	.....	
10,500	42,000	.001400	.000033	.....	.....	
10,750	43,000	.001433	.000033	.....	.....	
11,000	44,000	.001483	.000050	.....	.....	
11,250	45,000	.001583	.000100	.....	.....	
11,500	46,000	.004417	.002834	.....	.....	
11,750	47,000	.008350	.003933	.....	.....	
12,000	48,000	.009250	.000900	.....	.....	
12,250	49,000	.009917	.000667	.....	.....	
12,500	50,000	.011083	.001166	.....	.....	
13,000	52,000	.013100	.002017	.....	.....	
13,500	54,000	.015500	.002400	.....	.....	
14,000	56,000	.017833	.002333	.....	.....	
14,500	58,000	.020000	.002167	.....	.....	
15,000	60,000	.022750	.002750	.....	.....	
15,500	62,000	.025667	.002917	.....	.....	
16,000	64,000	.028667	.003000	.....	.....	
16,500	66,000	.031867	.003200	.....	.....	
17,000	68,000	.0367	.004833	.....	.....	
17,500	70,000	.0417	.0050	.....	.....	
18,000	72,000	.0467	.0050	.....	.....	
18,500	74,000	.0517	.0050	.....	.....	
19,000	76,000	.0633	.0116	.....	.....	
19,500	78,000	.0733	.0100	.....	.....	
20,000	80,000	.0867	.0134			Tensile strength.
20,460	81,840	.1417	.0550	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	81,840
Elastic limit per square inch of original section	do....	44,000
Elongation per inch after rupture	inch..	0.1817
Elongation per inch under strain at elastic limit	do....	.001483
Reduction in diameter at point of rupture	do....	.134
Reduction in area after rupture, per centum of original section		41.9
Position of rupture	1".25 from neck; oblique	
Character of broken surface	silky	
Elongation of inch sections	".33*, ".25, ".16, ".13, ".12, ".10	

H. Ex. 31—61

No. 2578.

Marks, $\frac{8}{T_{10}} \frac{T_{Hex}}{I}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000083	.000083	0.	.....	
2,500	10,000	.000233	.000150	0.	.....	
3,750	15,000	.000417	.000184	0.	.....	
5,000	20,000	.000583	.000166	0.	.....	
6,250	25,000	.000733	.000150	0.	.....	
7,500	30,000	.000900	.000167	0.	.....	
8,750	35,000	.001067	.000167	0.	.....	
9,000	36,000	.001117	.000050	.....	.....	
9,250	37,000	.001150	.000033	.....	.....	
9,500	38,000	.001183	.000033	.....	.....	
9,750	39,000	.001217	.000034	.....	.....	
10,000	40,000	.001250	.000033	.....	.....	
10,250	41,000	.001283	.000033	.....	.....	
10,500	42,000	.001317	.000034	.....	.....	
10,750	43,000	.001350	.000033	.....	.....	
11,000	44,000	.001383	.000033	.....	.....	
11,250	45,000	.001417	.000034	.....	.....	
11,500	46,000	.001450	.000033	.....	.....	
11,750	47,000	.001483	.000033	.....	.....	
12,000	48,000	.001533	.000050			Elastic limit.
12,250	49,000	.001567	.000034	.....	.....	
12,500	50,000	.003533	.001966	.....	.....	
12,750	51,000	.005033	.001500	.....	.....	
13,000	52,000	.007000	.001967	.....	.....	
13,500	54,000	.012333	.005333	.....	.....	
14,000	56,000	.014167	.001834	.....	.....	
14,500	58,000	.016250	.002083	.....	.....	
15,000	60,000	.018667	.002417	.....	.....	
15,500	62,000	.021250	.002583	.....	.....	
16,000	64,000	.023617	.002367	.....	.....	
16,500	66,000	.026667	.003050	.....	.....	
17,000	68,000	.029917	.003250	.....	.....	
17,500	70,000	.033667	.003750	.....	.....	
18,000	72,000	.0367	.003033	.....	.....	
18,500	74,000	.0400	.0033	.....	.....	
19,000	76,000	.0483	.0083	.....	.....	
19,500	78,000	.0550	.0067	.....	.....	
20,000	80,000	.0650	.0100	.....	.....	
20,500	82,000	.0800	.0150	.....	.....	
21,000	84,000	.1017	.0217			Tensile strength.
21,090	84,360	.1300	.0283	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	84,360
Elastic limit per square inch of original section.....	do ..	49,000
Elongation per inch after rupture.....	inch..	0.1883
Elongation per inch under strain at elastic limit.....	do...	.001567
Reduction in diameter at point of rupture.....	do...	.204
Reduction in area after rupture, per centum of original section.....		59.3
Position of rupture.....	2 inches from neck	
Character of broken surface.....	fine silky	
Elongation of inch sections.....	".08, ".10, ".13, ".18, ".48*, ".16	

No. 2579.

Marks, $\frac{8 T_{Hex}}{T_{11} M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000067	.000067	0.	.....	
2,500	10,000	.000233	.000166	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000717	.000150	0.	.....	
7,500	30,000	.000883	.000166	0.	.....	
8,750	35,000	.001067	.000184	0.	.....	
9,000	36,000	.001100	.000033	.....	.....	
9,250	37,000	.001133	.000033	.....	.....	
9,500	38,000	.001183	.000050	.....	.....	
9,750	39,000	.001233	.000050	.....	.....	
10,000	40,000	.001267	.000034	.....	.....	
10,250	41,000	.001300	.000033	.....	.....	
10,500	42,000	.001317	.000017	.....	.....	
10,750	43,000	.001350	.000033	.....	.....	
11,000	44,000	.001383	.000033	.....	.....	
11,250	45,000	.001433	.000050	.....	.....	Elastic limit.
11,500	46,000	.002500	.001067	.....	.....	
11,750	47,000	.004000	.001500	.....	.....	
12,000	48,000	.007750	.003750	.....	.....	
12,250	49,000	.008683	.000933	.....	.....	
12,500	50,000	.009500	.000817	.....	.....	
13,000	52,000	.012333	.002833	.....	.....	
13,500	54,000	.014000	.001667	.....	.....	
14,000	56,000	.015700	.001700	.....	.....	
14,500	58,000	.018000	.002300	.....	.....	
15,000	60,000	.020167	.002167	.....	.....	
15,500	62,000	.021500	.001333	.....	.....	
16,000	64,000	.024667	.003167	.....	.....	
16,500	66,000	.028333	.003666	.....	.....	
17,000	68,000	.030667	.002334	.....	.....	
17,500	70,000	.033333	.002666	.....	.....	
18,000	72,000	.0367	.003367	.....	.....	
18,500	74,000	.0417	.0050	.....	.....	
19,000	76,000	.0467	.0050	.....	.....	
19,500	78,000	.0533	.0066	.....	.....	
20,000	80,000	.0600	.0067	.....	.....	
20,500	82,000	.0700	.0100	.....	.....	
21,000	84,000	.0850	.0150	.....	.....	
21,500	86,000	.1150	.0300	.....	.....	
21,540	86,160	.1333	.0183	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	86,160
Elastic limit per square inch of original section.....	do...	45,000
Elongation per inch after rupture.....	inch..	0.1650
Elongation per inch under strain at elastic limit.....	do...	.001433
Reduction in diameter at point of rupture.....	do...	.174
Reduction in area after rupture, per centum of original section.....		52.2
Position of rupture.....	".85 from neck	
Character of broken surface.....	fine silky	
Elongation of inch sections.....	".39*, ".18, ".13, ".11, ".10, ".08	

No. 2580.

Marks, $\frac{8}{T_{12}O}$ Hex

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000267	.000167	0.	.....	
3,750	15,000	.000450	.000133	0.	.....	
5,000	20,000	.000633	.000183	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000983	.000183	0.	.....	
8,750	35,000	.001150	.000167	0.	.....	
9,000	36,000	.001183	.000033	.....	.....	
9,250	37,000	.001217	.000034	.....	.....	
9,500	38,000	.001233	.000016	.....	.....	
9,750	39,000	.001267	.000034	.....	.....	
10,000	40,000	.001300	.000033	.....	.....	
10,250	41,000	.001333	.000033	.....	.....	
10,500	42,000	.001383	.000050	.....	.....	
10,750	43,000	.001417	.000034	.....	.....	
11,000	44,000	.001450	.000033	.....	.....	
11,250	45,000	.001500	.000050	.....	.....	
11,500	46,000	.001533	.000033	.....	.....	
11,750	47,000	.001583	.000050	.....	.....	
12,000	48,000	.001650	.000067	.....	.....	Elastic limit.
12,250	49,000	.004833	.003183	.....	.....	
12,500	50,000	.006417	.001584	.....	.....	
12,750	51,000	.007933	.001516	.....	.....	
13,000	52,000	.009667	.001734	.....	.....	
13,500	54,000	.011333	.001666	.....	.....	
14,000	56,000	.013017	.001684	.....	.....	
14,500	58,000	.014917	.001900	.....	.....	
15,000	60,000	.016667	.001750	.....	.....	
15,500	62,000	.019000	.002333	.....	.....	
16,000	64,000	.021583	.002583	.....	.....	
16,500	66,000	.024000	.002417	.....	.....	
17,000	68,000	.026000	.002000	.....	.....	
17,500	70,000	.028667	.002667	.....	.....	
18,000	72,000	.031667	.003000	.....	.....	
18,500	74,000	.0350	.003333	.....	.....	
19,000	76,000	.0383	.0033	.....	.....	
19,500	78,000	.0433	.0050	.....	.....	
20,000	80,000	.0500	.0067	.....	.....	
20,500	82,000	.0567	.0067	.....	.....	
21,000	84,000	.0650	.0083	.....	.....	
21,500	86,000	.0567	.0117	.....	.....	
22,000	88,000	.0900	.0133	.....	.....	
22,320	89,280	.1333	.0433	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	89,280
Elastic limit per square inch of original section.....	do...	48,000
Elongation per inch after rupture.....	inch..	0.1667
Elongation per inch under strain at elastic limit.....	do...	.001650
Reduction in diameter at point of rupture.....	do...	.184
Reduction in area after rupture, per centum of original section.....		54.6
Position of rupture.....	".20 from middle of stem	
Character of broken surface.....	silky	
Elongation of inch sections.....	".09, ".12, ".37*, ".20, ".12, ".10	

No. 2581.

Marks, $\frac{8T}{T_{13}O}$ HexDiameter, $\frac{1}{2}$ inch.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>* Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000117	.000117	0.	-----	
2,500	10,000	.000300	.000183	0.	-----	
3,750	15,000	.000467	.000167	0.	-----	
5,000	20,000	.000633	.000166	0.	-----	
6,250	25,000	.000817	.000184	0.	-----	
7,500	30,000	.000983	.000166	0.	-----	
8,750	35,000	.001150	.000167	0.	-----	
10,000	40,000	.001300	.000150	0.	-----	
10,250	41,000	.001333	.000033	-----	-----	
10,500	42,000	.001367	.000034	-----	-----	
10,750	43,000	.001400	.000033	-----	-----	
11,000	44,000	.001417	.000017	-----	-----	
11,250	45,000	.001483	.000066	0.	-----	
11,500	46,000	.001583	.000100	-----	-----	
11,750	47,000	.001633	.000050	-----	-----	
12,000	48,000	.001667	.000034	-----	-----	
12,250	49,000	.001683	.000016	-----	-----	
12,500	50,000	.001717	.000034	.000067	.000067	Elastic limit.
12,750	51,000	.001800	.000083	-----	-----	
13,000	52,000	.004667	.002867	-----	-----	
13,250	53,000	.006417	.001750	-----	-----	
13,500	54,000	.007667	.001250	-----	-----	
14,000	56,000	.009000	.001333	-----	-----	
14,500	58,000	.011017	.002017	-----	-----	
15,000	60,000	.012833	.001816	-----	-----	
15,500	62,000	.014500	.001667	-----	-----	
16,000	64,000	.016533	.002033	-----	-----	
16,500	66,000	.018617	.002084	-----	-----	
17,000	68,000	.020833	.002216	-----	-----	
17,500	70,000	.023333	.002500	-----	-----	
18,000	72,000	.025667	.002334	-----	-----	
18,500	74,000	.028333	.002666	-----	-----	
19,000	76,000	.031417	.003084	-----	-----	
19,500	78,000	.034500	.003083	-----	-----	
20,000	80,000	.0383	.0038	-----	-----	
20,500	82,000	.0433	.0050	-----	-----	
21,000	84,000	.0500	.0067	-----	-----	
21,500	86,000	.0567	.0067	-----	-----	
22,000	88,000	.0667	.0100	-----	-----	
22,500	90,000	.0833	.0166	-----	-----	
22,990	91,960	.1333	.0500	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	91,960
Elastic limit per square inch of original section.....	do...	50,007
Elongation per inch after rupture.....	inch..	0.1667
Elongation per inch under strain at elastic limit.....	do...	.001717
Reduction in diameter at point of rupture.....	do...	.094
Reduction in area after rupture, per centum of original section.....		30.6
Position of rupture.....	"	.270 from neck
Character of broken surface, granular; dull, flaky spot at circumference; opened cracks in surface of stem.		
Elongation of inch sections.....	"	.10, ".13, ".15, ".29*, ".19, ".14

No. 2582.

Marks, $\frac{8}{T_{14}I} \frac{T_{Hex}}{I}$
 Diameter, $\frac{1}{16}$.564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000067	.000067	0.	.....	
2,500	10,000	.000250	.000183	0.	.....	
3,750	15,000	.000417	.000167	0.	.....	
5,000	20,000	.000583	.000166	0.	.....	
6,250	25,000	.000750	.000167	0.	.....	
7,500	30,000	.000917	.000167	0.	.....	
8,750	35,000	.001083	.000166	0.	.....	
9,000	36,000	.001150	.000067	.....	.....	
9,250	37,000	.001183	.000033	.....	.....	
9,500	38,000	.001233	.000050	.....	.....	
9,750	39,000	.001250	.000017	.....	.....	
10,000	40,000	.001283	.000033	.....	.....	
10,250	41,000	.001317	.000034	.....	.....	
10,500	42,000	.001350	.000033	.....	.....	
10,750	43,000	.001400	.000050	.....	.....	
11,000	44,000	.001417	.000017	.....	.....	
11,250	45,000	.001450	.000033	.....	.....	
11,500	46,000	.001483	.000033	.....	.....	
11,750	47,000	.001517	.000034	.....	.....	
12,000	48,000	.001583	.000066	.....	.....	
12,250	49,000	.001617	.000034	.....	.....	
12,500	50,000	.001650	.000033	.....	.....	
12,750	51,000	.001683	.000033	.....	.....	
13,000	52,000	.001700	.000017	.....	.....	
13,250	53,000	.001733	.000033	.....	.....	
13,500	54,000	.001750	.000017	.....	.....	
13,750	55,000	.001833	.000083	.....	.....	Elastic limit.
14,000	56,000	.001900	.000067	.....	.....	
14,250	57,000	.003833	.001933	.....	.....	
14,500	58,000	.007917	.004084	.....	.....	
14,750	59,000	.009583	.001666	.....	.....	
15,000	60,000	.010700	.001117	.....	.....	
15,500	62,000	.013000	.002300	.....	.....	
16,000	64,000	.015200	.002200	.....	.....	
16,500	66,000	.017333	.002133	.....	.....	
17,000	68,000	.019500	.002167	.....	.....	
17,500	70,000	.022167	.002667	.....	.....	
18,000	72,000	.024667	.002500	.....	.....	
18,500	74,000	.027667	.003000	.....	.....	
19,000	76,000	.030967	.003300	.....	.....	
19,500	78,000	.034583	.003616	.....	.....	
20,000	80,000	.0383	.003717	.....	.....	
20,500	82,000	.0450	.0067	.....	.....	
21,000	84,000	.0517	.0067	.....	.....	
21,500	86,000	.0600	.0083	.....	.....	
22,000	88,000	.0717	.0117	.....	.....	
22,500	90,000	.0917	.0200	.....	.....	
22,820	91,280	.1350	.0433	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	91,280
Elastic limit per square inch of original section.....	do...	56,000
Elongation per inch after rupture.....	inch..	0.1733
Elongation per inch under strain at elastic limit.....	do...	.001900
Reduction in diameter at point of rupture.....	do...	.184
Reduction in area after rupture, per centum of original section.....		54.6
Position of rupture.....	2".85 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	" .10, ".15, ".43, * ".15, ".12, ".09	

No. 2583.

Marks, $\frac{8}{15} T_{Hex}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000167	.000167	0.	.....	
2,500	10,000	.000217	.000050	0.	.....	
3,750	15,000	.000367	.000150	0.	.....	
5,000	20,000	.000533	.000166	0.	.....	
6,250	25,000	.000683	.000150	0.	.....	
7,500	30,000	.000850	.000167	0.	.....	
8,750	35,000	.001033	.000183	0.	.....	
9,000	36,000	.001067	.000034	.....	.....	
9,250	37,000	.001100	.000033	.....	.....	
9,500	38,000	.001133	.000033	.....	.....	
9,750	39,000	.001200	.000067	.....	.....	
10,000	40,000	.001233	.000033	.....	.....	
10,250	41,000	.001267	.000034	.....	.....	
10,500	42,000	.001283	.000016	.....	.....	
10,750	43,000	.001317	.000034	.....	.....	
11,000	44,000	.001350	.000033	.....	.....	
11,250	45,000	.001367	.000017	.....	.....	
11,500	46,000	.001433	.000066			Elastic limit.
11,750	47,000	.001500	.000067	.....	.....	
12,000	48,000	.003083	.001583	.....	.....	
12,250	49,000	.006417	.003334	.....	.....	
12,500	50,000	.008667	.002250	.....	.....	
13,000	52,000	.010167	.001500	.....	.....	
13,500	54,000	.011667	.001500	.....	.....	
14,000	56,000	.013333	.001666	.....	.....	
14,500	58,000	.015200	.001867	.....	.....	
15,000	60,000	.017333	.002133	.....	.....	
15,500	62,000	.019133	.001800	.....	.....	
16,000	64,000	.021333	.002200	.....	.....	
16,500	66,000	.023750	.002417	.....	.....	
17,000	68,000	.026167	.002417	.....	.....	
17,500	70,000	.029000	.002833	.....	.....	
18,000	72,000	.031667	.002667	.....	.....	
18,500	74,000	.035500	.003833	.....	.....	
19,000	76,000	.0383	.0028	.....	.....	
19,500	78,000	.0450	.0067	.....	.....	
20,000	80,000	.0500	.0050			Tensile strength.
20,500	82,000	.0567	.0067	.....	.....	
21,000	84,000	.0667	.0100	.....	.....	
21,500	86,000	.0800	.0133	.....	.....	
22,000	88,000	.1000	.0200			
22,240	88,960	.1400	.0400			

General summary.

Tensile strength per square inch of original section.....	pounds..	88,960
Elastic limit per square inch of original section.....	do...	47,000
Elongation per inch after rupture.....	inch..	0.1917
Elongation per inch under strain at elastic limit.....	do...	.001500
Reduction in diameter at point of rupture.....	do...	.124
Reduction in area after rupture, per centum of original section.....		39.2
Position of rupture.....	2".90 from neck	
Character of broken surface.....	granular, 60 per centum; silky, 40 per centum	
Elongation of inch sections.....	".13, ".21, ".17, ".36, ".17, ".11	

No. 2584.

Marks, $\frac{8}{16} T_{Hex}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000117	.000117	0.	.....	
2,500	10,000	.000283	.000166	0.	.....	
3,750	15,000	.000483	.000200	0.	.....	
5,000	20,000	.000667	.000184	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
8,750	35,000	.001167	.000167	0.	.....	
9,000	36,000	.001200	.000033	.....	.....	
9,250	37,000	.001217	.000017	.....	.....	
9,500	38,000	.001267	.000050	.....	.....	
9,750	39,000	.001300	.000033	.....	.....	
10,000	40,000	.001317	.000017	.....	.....	
10,250	41,000	.001350	.000033	.....	.....	
10,500	42,000	.001383	.000033	.....	.....	
10,750	43,000	.001433	.000050	.....	.....	
11,000	44,000	.001500	.000067	.....	.....	
11,250	45,000	.001550	.000050	.....	.....	
11,500	46,000	.001583	.000033			Elastic limit.
11,750	47,000	.001617	.000034	.....	.....	
12,000	48,000	.004300	.002683	.....	.....	
12,250	49,000	.006233	.001933	.....	.....	
12,500	50,000	.008167	.001934	.....	.....	
13,000	52,000	.010167	.002000	.....	.....	
13,500	54,000	.012750	.002583	.....	.....	
14,000	56,000	.014417	.001667	.....	.....	
14,500	58,000	.016417	.002000	.....	.....	
15,000	60,000	.018833	.002416	.....	.....	
15,500	62,000	.021000	.002167	.....	.....	
16,000	64,000	.022667	.001667	.....	.....	
16,500	66,000	.026333	.003666	.....	.....	
17,000	68,000	.029833	.003500	.....	.....	
17,500	70,000	.0333	.003467	.....	.....	
18,000	72,000	.0367	.0034	.....	.....	
18,500	74,000	.0400	.0033	.....	.....	
19,000	76,000	.0433	.0033	.....	.....	
19,500	78,000	.0483	.0050	.....	.....	
20,000	80,000	.0567	.0084			Tensile strength.
20,500	82,000	.0667	.0100	.....	.....	
21,000	84,000	.0767	.0100	.....	.....	
21,500	86,000	.0983	.0216	.....	.....	
21,880	87,520	.1400	.0417			

General summary.

Tensile strength per square inch of original section.....	pounds..	87,520
Elastic limit per square inch of original section	do...	47,000
Elongation per inch after rupture	inch..	0.1700
Elongation per inch under strain at elastic limit	do...	.001617
Reduction in diameter at point of rupture	do...	.154
Reduction in area after rupture, per centum of original section.....		47.2
Position of rupture	1".85 from neck	
Character of broken surface	fine; silky	
Elongation of inch sections	".10, ".11, ".12, ".15, ".39, ".15	

No. 2585.

Marks, ^{8 T Hex}_{T₁₇ O}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000283	.000183	0.	.....	
3,750	15,000	.000467	.000184	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.000967	.000167	0.	.....	
8,750	35,000	.001133	.000166	0.	.....	
9,000	36,000	.001183	.000050	.....	.....	
9,250	37,000	.001217	.000034	.....	.....	
9,500	38,000	.001267	.000050	.....	.....	
9,750	39,000	.001300	.000033	.....	.....	
10,000	40,000	.001333	.000033	.....	.....	
10,250	41,000	.001367	.000034	.....	.....	
10,500	42,000	.001400	.000033	.....	.....	
10,750	43,000	.001433	.000033			Elastic limit.
11,000	44,000	.001483	.000050	.....	.....	
11,250	45,000	.001533	.000050	.....	.....	
11,500	46,000	.008617	.007084	.....	.....	
11,750	47,000	.009000	.000383	.....	.....	
12,000	48,000	.009700	.000700	.....	.....	
12,250	49,000	.010433	.000733	.....	.....	
12,500	50,000	.011867	.001434	.....	.....	
13,000	52,000	.014000	.002133	.....	.....	
13,500	54,000	.016417	.002417	.....	.....	
14,000	56,000	.018933	.002516	.....	.....	
14,500	58,000	.021167	.002234	.....	.....	
15,000	60,000	.023750	.002583	.....	.....	
15,500	62,000	.027333	.003583	.....	.....	
16,000	64,000	.030200	.002867			Tensile strength.
16,500	66,000	.034000	.003800	.....	.....	
17,000	68,000	.036700	.0027	.....	.....	
17,500	70,000	.0433	.0066	.....	.....	
18,000	72,000	.0500	.0067	.....	.....	
18,500	74,000	.0550	.0050	.....	.....	
19,000	76,000	.0683	.0133	.....	.....	
19,500	78,000	.0833	.0150	.....	.....	
20,000	80,000	.1067	.0234	.....	.....	
20,190	80,760	.1483	.0416	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	80,760
Elastic limit per square inch of original section.....	do...	45,000
Elongation per inch after rupture.....	inch..	0.1850
Elongation per inch under strain at elastic limit.....	do...	.001533
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....	1".50 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".20, ".36*, ".17, ".16, ".13, ".09	

No. 2586.

Marks, $\frac{8}{T_{18}I}$ Hex

Diameter, ".564.

Sectional area, .25 square inch.

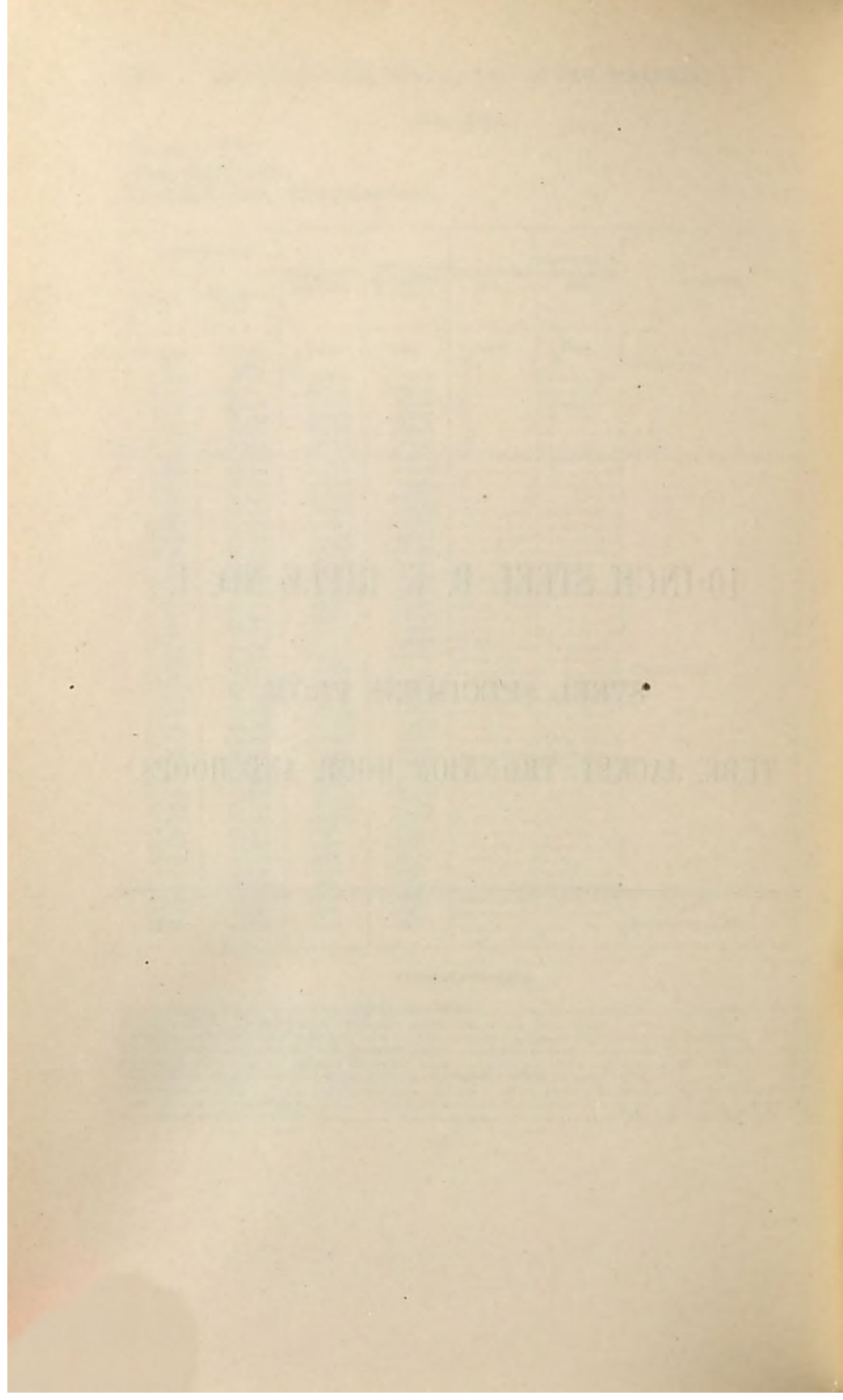
Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000083	.000083	0.	.....	
2,500	10,000	.000267	.000184	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.000933	.000166	0.	.....	
8,750	35,000	.001100	.000167	0.	.....	
9,000	36,000	.001133	.000033	.....	.....	
9,250	37,000	.001183	.000050	.....	.....	
9,500	38,000	.001200	.000017	.....	.....	
9,750	39,000	.001233	.000033	.....	.....	
10,000	40,000	.001283	.000050	.....	.....	
10,250	41,000	.001317	.000034	.....	.....	
10,500	42,000	.001383	.000066	.....	.....	
10,750	43,000	.001417	.000034	.....	.....	
11,000	44,000	.001433	.000016	.....	.....	
11,250	45,000	.001483	.000050	.....	.....	
11,500	46,000	.001517	.000034	.....	.....	
11,750	47,000	.001567	.000050	.....	.....	
12,000	48,000	.001600	.000033	.....	.....	
12,250	49,000	.001633	.000033	.....	.....	
12,500	50,000	.001683	.000050			Elastic limit.
12,750	51,000	.001733	.000050	.....	.....	
13,000	52,000	.010200	.008467	.....	.....	
13,250	53,000	.010750	.000550	.....	.....	
13,500	54,000	.012250	.001500	.....	.....	
14,000	56,000	.014500	.002250	.....	.....	
14,500	58,000	.016667	.002167	.....	.....	
15,000	60,000	.019167	.002500	.....	.....	
15,500	62,000	.022167	.003000	.....	.....	
16,000	64,000	.025000	.002833	.....	.....	
16,500	66,000	.027333	.002333			Tensile strength.
17,000	68,000	.030833	.003500	.....	.....	
17,500	70,000	.034000	.003167	.....	.....	
18,000	72,000	.0367	.0027	.....	.....	
18,500	74,000	.0433	.0066	.....	.....	
19,000	76,000	.0500	.0067	.....	.....	
19,500	78,000	.0550	.0050	.....	.....	
20,000	80,000	.0683	.0133	.....	.....	
20,500	82,000	.0833	.0150	.....	.....	
21,000	84,000	.1100	.0267	.....	.....	
21,100	84,400	.1417	.0317	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	84,400
Elastic limit per square inch of original section.....	do...	51,000
Elongation per inch after rupture.....	inch..	0.1933
Elongation per inch under strain at elastic limit.....	do...	.001733
Reduction in diameter at point of rupture.....	do...	.204
Reduction in area after rupture, per centum of original section.....		59.3
Position of rupture.....	2".50 from neck	
Character of broken surface.....	fine silky	
Elongation of inch sections.....	".09, ".12, ".13, ".39*, ".28, ".15	

10-INCH STEEL B. L. RIFLE NO. 1.

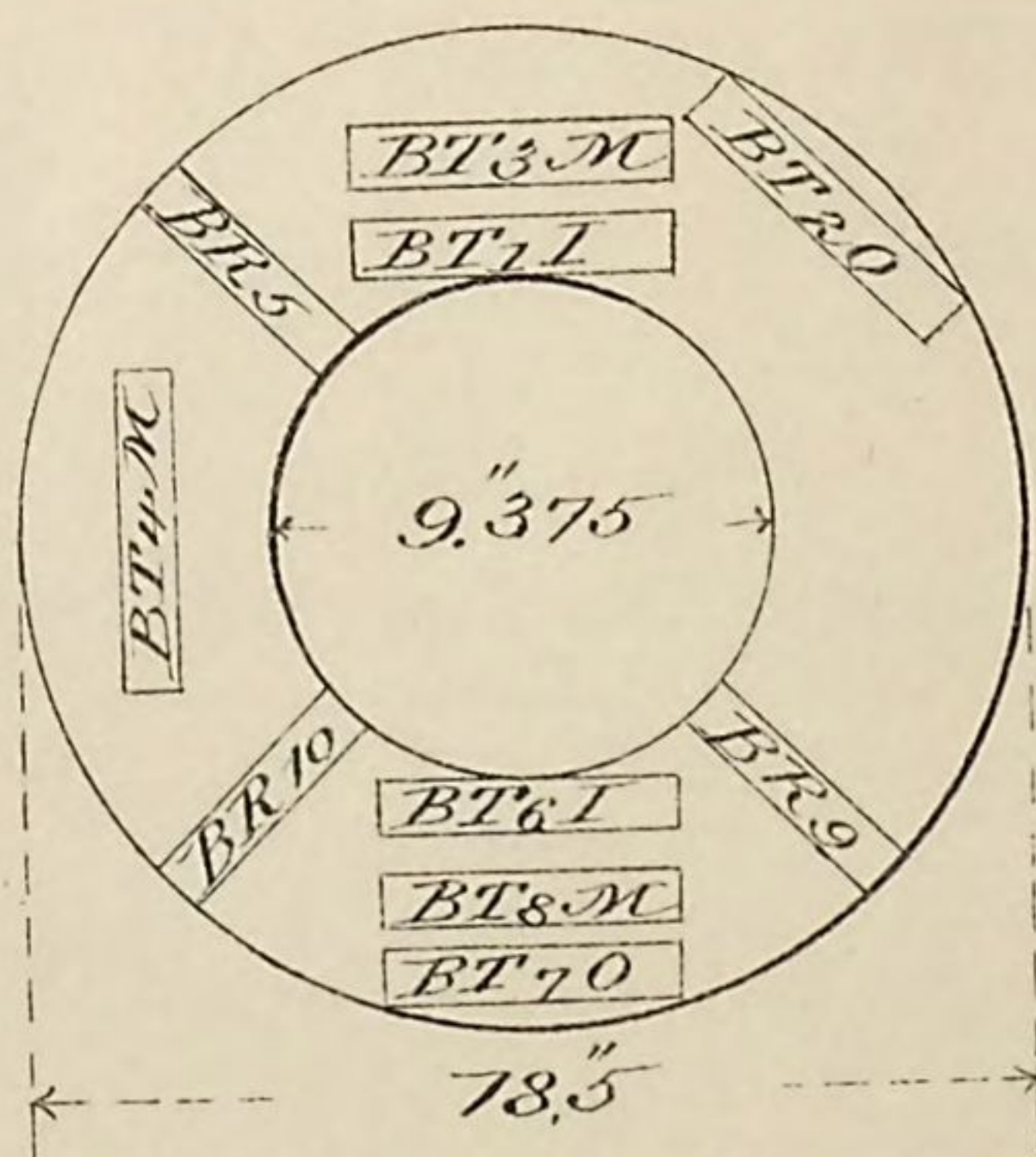
STEEL SPECIMENS FROM
TUBE, JACKET, TRUNNION HOOP, AND HOOPS.



10" Steel B. L. Rifle No. 1

Tube

Breech end



H Ex 3/ 49 2

TUBE—WHITWORTH STEEL.

No. 2740.

Marks, $\frac{10 R_1 T}{B T_1 I}$
Diameter, $\frac{1}{2}$ inch.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000200	.000200	.000033	.000033	
2,500	10,000	.000400	.000200	.000067	.000034	
3,750	15,000	.000633	.000233	.000067	0.	
5,000	20,000	.000833	.000200	.000067	0.	
6,250	25,000	.000967	.000134	.000067	0.	
7,500	30,000	.001200	.000233	.000100	.000033	
7,750	31,000	.001233	.000033	.....	.....	
8,000	32,000	.001267	.000034	.....	.....	
8,250	33,000	.001300	.000033			Elastic limit.
8,500	34,000	.001500	.000200	.....	.....	
8,750	35,000	.002667	.001167	.001333	.001233	
9,000	36,000	.003333	.000666	.....	.....	
9,250	37,000	.003600	.000267	.....	.....	
9,500	38,000	.004267	.000667	.....	.....	
9,750	39,000	.005000	.000733	.....	.....	
10,000	40,000	.005800	.000800	.....	.....	
10,250	41,000	.006600	.000800	.....	.....	
10,500	42,000	.007433	.000833	.....	.....	
10,750	43,000	.008167	.000734			
11,000	44,000	.009067	.000900	.....	.....	
11,250	45,000	.009900	.000833	.....	.....	
11,500	46,000	.011167	.001267	.....	.....	
11,750	47,000	.012067	.000900	.....	.....	
12,000	48,000	.012800	.000733	.....	.....	
12,250	49,000	.014000	.001200	.....	.....	
12,500	50,000	.014733	.000733	.....	.....	
13,000	52,000	.017167	.002434	.....	.....	
13,500	54,000	.019500	.002333			
14,000	56,000	.022167	.002667	.....	.....	
14,500	58,000	.025000	.002833	.....	.....	
15,000	60,000	.028167	.003167	.....	.....	
15,500	62,000	.031667	.003500	.....	.....	
16,000	64,000	.035500	.003833	.....	.....	
16,500	66,000	.039500	.004000	.....	.....	
17,000	68,000	.0433	.0038	.....	.....	
17,500	70,000	.0533	.0100	.....	.....	
18,000	72,000	.0633	.0100			Tensile strength.
18,500	74,000	.0700	.0067	.....	.....	
19,000	76,000	.0833	.0133	.....	.....	
19,500	78,000	.1033	.0200	.....	.....	
19,900	79,600	.1600	.0567	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	79,600
Elastic limit per square inch of original section.....	do ..	33,000
Elongation per inch after rupture.....	inch..	0.2000
Elongation per inch under strain at elastic limit.....	do...	.001300
Reduction in diameter at point of rupture.....	do...	.104
Reduction in area after rupture, per centum of original section.....		33.5
Position of rupture.....	$\frac{1}{4}$ inch from neck	
Character of broken surface.....	granular, 60 per centum; silky, 40 per centum	
Elongation of inch sections.....	" .30*, ".17, ".13	

No. 2741.

Marks, $\frac{10 R_1 T}{B T_2 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000500	.000167	0.	.....	
5,000	20,000	.000667	.000167	0.	.....	
6,250	25,000	.000833	.000166	0.	.....	
7,500	30,000	.001000	.000167	0.	.....	
7,750	31,000	.001033	.000033	.....	.....	
8,000	32,000	.001067	.000034	.....	.....	
8,250	33,000	.001100	.000033	.....	.....	
8,500	34,000	.001167	.000067	.....	.....	
8,750	35,000	.001167	0.	.000033	.000033	
9,000	36,000	.001200	.000033			Elastic limit.
9,250	37,000	.001267	.000067	.....	.....	
9,500	38,000	.002000	.000733	.....	.....	
9,750	39,000	.002333	.000333	.....	.....	
10,000	40,000	.002600	.000267	.....	.....	
10,250	41,000	.002833	.000233	.....	.....	
10,500	42,000	.003133	.000300	.....	.....	
10,750	43,000	.003400	.000267	.....	.....	
11,000	44,000	.003767	.000367	.....	.....	
11,250	45,000	.004133	.000366	.....	.....	
11,500	46,000	.005000	.000867	.....	.....	
11,750	47,000	.005600	.000600	.....	.....	
12,000	48,000	.005933	.000333	.....	.....	
12,250	49,000	.006667	.000734	.....	.....	
12,500	50,000	.007833	.001166	.....	.....	
13,000	52,000	.009667	.001834	.....	.....	
13,500	54,000	.011667	.002000	.....	.....	
14,000	56,000	.013833	.002166	.....	.....	
14,500	58,000	.015667	.001834	.....	.....	
15,000	60,000	.017567	.001900			Tensile strength.
15,500	62,000	.019867	.002300	.....	.....	
16,000	64,000	.022333	.002466	.....	.....	
16,500	66,000	.025000	.002667	.....	.....	
17,000	68,000	.038333	.003333	.....	.....	
17,500	70,000	.032000	.003367	.....	.....	
18,000	72,000	.035000	.003000	.....	.....	
18,500	74,000	.0400	.0050	.....	.....	
19,000	76,000	.0433	.0033	.....	.....	
19,500	78,000	.0467	.0034	.....	.....	
20,000	80,000	.0567	.0100	.....	.....	
20,500	82,000	.0667	.0100	.....	.....	
21,000	84,000	.0800	.0133	.....	.....	
21,440	85,760	.1133	.0333	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	85,760
Elastic limit per square inch of original section	do...	37,000
Elongation per inch after rupture	inch..	0.2167
Elongation per inch under strain at elastic limit	do...	.001267
Reduction in diameter at point of rupture	do...	.144
Reduction in area after rupture, per centum of original section		44.6
Position of rupture	".85 from neck	
Character of broken surface	silky	
Elongation of inch sections	".10, ".17, ".38*	

No. 2739.

Marks, $\frac{10 R_1 T}{B T_3 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000333	.000200	0.	.....	
3,750	15,000	.000467	.000134	0.	.....	
5,000	20,000	.000633	.000166	0.	.....	
6,250	25,000	.000800	.000167	0.	.....	
7,500	30,000	.001033	.000233	0.	.....	
7,750	31,000	.001067	.000034	.....	.....	
8,000	32,000	.001067	0.	.....	.....	
8,250	33,000	.001100	.000033			Elastic limit.
8,500	34,000	.001167	.000067	.....	.....	
8,750	35,000	.001233	.000066	.000033	.000033	
9,000	36,000	.001433	.000200	.....	.....	
9,250	37,000	.001733	.000300	.....	.....	
9,500	38,000	.002267	.000534	.....	.....	
9,750	39,000	.002867	.000600	.....	.....	
10,000	40,000	.003333	.000466	.....	.....	
10,250	41,000	.004000	.000667	.....	.....	
10,500	42,000	.004367	.000367			Tensile strength.
10,750	43,000	.005000	.000633	.....	.....	
11,000	44,000	.005833	.000833	.....	.....	
11,250	45,000	.006600	.000767	.....	.....	
11,500	46,000	.007333	.000733	.....	.....	
11,750	47,000	.008067	.000734	.....	.....	
12,000	48,000	.009167	.001100	.....	.....	
12,250	49,000	.010000	.000833	.....	.....	
12,500	50,000	.011000	.001000	.....	.....	
13,000	52,000	.012500	.001500	.....	.....	
13,500	54,000	.014867	.002367			Tensile strength.
14,000	56,000	.017333	.002466	.....	.....	
14,500	58,000	.019667	.002334	.....	.....	
15,000	60,000	.022333	.002666	.....	.....	
15,500	62,000	.024667	.002334	.....	.....	
16,000	64,000	.027400	.002733	.....	.....	
16,500	66,000	.030833	.003433	.....	.....	
17,000	68,000	.034333	.003500	.....	.....	
17,500	70,000	.038167	.003834	.....	.....	
18,000	72,000	.0433	.005133	.....	.....	
18,500	74,000	.0500	.0067			Tensile strength.
19,000	76,000	.0567	.0067	.....	.....	
19,500	78,000	.0667	.0100	.....	.....	
20,000	80,000	.0767	.0100	.....	.....	
20,500	82,000	.0933	.0166	.....	.....	
20,970	83,880	.1433	.0500	.....	.....	

General summary.

Tensile strength per square inch of original section.....	pounds..	83,880
Elastic limit per square inch of original section.....	do...	35,000
Elongation per inch after rupture.....	inch..	0.2200
Elongation per inch under strain at elastic limit.....	do...	.001233
Reduction in diameter at point of rupture.....	do...	.144
Reduction in area after rupture, per centum of original section.....		44.6
Position of rupture.....	1".25 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".14, ".32*, ".20	

No. 2738.

Marks, ^{10 R, T}_{B T, M}
Diameter, ".564.
Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000600	.000167	0.	.....	
6,250	25,000	.000767	.000167	0.	.....	
7,500	30,000	.001000	.000233	0.	.....	
7,750	31,000	.001033	.000033	.....	.....	
8,000	32,000	.001100	.000067	.....	.....	
8,250	33,000	.001167	.000067	.....	.....	
8,500	34,000	.001267	.000100	.....	.....	
8,750	35,000	.001333	.000066	.000133	.000133	Elastic limit.
9,000	36,000	.001500	.000167	.....	.....	
9,250	37,000	.002667	.001167	.....	.....	
9,500	38,000	.003167	.000500	.....	.....	
9,750	39,000	.003600	.000433	.....	.....	
10,000	40,000	.003800	.000200	.....	.....	
10,250	41,000	.004267	.000467	.....	.....	
10,500	42,000	.004767	.000500	.....	.....	
10,750	43,000	.005333	.000566	.....	.....	
11,000	44,000	.006500	.001167	.....	.....	
11,250	45,000	.007333	.000813	.....	.....	
11,500	46,000	.008000	.000667	.....	.....	
11,750	47,000	.008667	.000667	.....	.....	
12,000	48,000	.009667	.001000	.....	.....	
12,250	49,000	.010433	.000766	.....	.....	
12,500	50,000	.011500	.001067	.....	.....	
13,000	52,000	.013333	.001833	.....	.....	
13,500	54,000	.015500	.002167	.....	.....	
14,000	56,000	.017667	.002167	.....	.....	
14,500	58,000	.019933	.002266	.....	.....	
15,000	60,000	.022500	.002567	.....	.....	
15,500	62,000	.025333	.002833	.....	.....	
16,000	64,000	.028000	.002667	.....	.....	
16,500	66,000	.031367	.003367	.....	.....	
17,000	68,000	.035333	.003966	.....	.....	
17,500	70,000	.039333	.004000	.....	.....	
18,000	72,000	.0433	.003967	.....	.....	
18,500	74,000	.0500	.0067	.....	.....	
19,000	76,000	.0600	.0100	.....	.....	
19,500	78,000	.0700	.0100	.....	.....	
20,000	80,000	.0800	.0100	.....	.....	
20,500	82,000	.1033	.0233			Tensile strength.
20,730	82,920	.1506	.0467	.....	.....	

General summary.

Tensile strength per square inch of original section	pounds..	82,920
Elastic limit per square inch of original section	do...	35,000
Elongation per inch after rupture	inch..	0.2123
Elongation per inch under strain at elastic limit.....	do...	.001333
Reduction in diameter at point of rupture	do...	.124
Reduction in area after rupture, per centum of original section.....		39.2
Position of rupture	1" .40 from neck	
Character of broken surface.....	silky; slightly granular	
Elongation of inch sections	".20, ".32*, ".12	

No. 2742.

Marks, $\frac{10 R_1 T}{B R_5}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000150	.000150	0.	.....	
2,500	10,000	.000300	.000150	0.	.....	
3,750	15,000	.000500	.000200	0.	.....	
5,000	20,000	.000650	.000150	0.	.....	
6,250	25,000	.000800	.000150	0.	.....	
7,500	30,000	.000950	.000150	0.	.....	
7,750	31,000	.001000	.000050			Elastic limit.
8,000	32,000	.001400	.000400	.....	.....	
8,250	33,000	.001550	.000150	.....	.....	
8,500	34,000	.001750	.000200	.....	.....	
8,750	35,000	.002150	.000400	.000850	.000850	
9,000	36,000	.002450	.000300	.....	.....	
9,250	37,000	.002700	.000250	.....	.....	
9,500	38,000	.003400	.000700	.....	.....	
9,750	39,000	.003900	.000500	.....	.....	
10,000	40,000	.004500	.000600	.....	.....	
10,250	41,000	.005000	.000500	.....	.....	
10,500	42,000	.005600	.000600	.....	.....	
10,750	43,000	.006250	.000650	.....	.....	
11,000	44,000	.007000	.000750	.....	.....	
11,250	45,000	.007800	.000800	.....	.....	
11,500	46,000	.008600	.000800	.....	.....	
11,750	47,000	.009250	.000650	.....	.....	
12,000	48,000	.010250	.001000	.....	.....	
12,250	49,000	.011200	.000950	.....	.....	
12,500	50,000	.012250	.001050	.....	.....	
13,000	52,000	.014500	.002250	.....	.....	
13,500	54,000	.016700	.002200	.....	.....	
14,000	56,000	.019000	.002300	.....	.....	
14,500	58,000	.021650	.002650	.....	.....	
15,000	60,000	.024250	.002600	.....	.....	
15,500	62,000	.027000	.002750	.....	.....	
16,000	64,000	.030250	.003250	.....	.....	
16,500	66,000	.034000	.003750	.....	.....	
17,000	68,000	.038500	.004500	.....	.....	
17,500	70,000	.043000	.004500	.....	.....	
18,000	72,000	.048250	.005250	.....	.....	
18,500	74,000	.054750	.006500	.....	.....	
19,000	76,000	.0600	.005250	.....	.....	
19,500	78,000	.0750	.0150	.....	.....	
20,000	80,000	.1000	.0250	.....	.....	
20,150	80,600	.1200	.0200			Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	80,600
Elastic limit per square inch of original section	do ..	31,000
Elongation per inch after rupture	inch ..	0.1550
Elongation per inch under strain at elastic limit	do ..	.001000
Reduction in diameter at point of rupture	do ..	.084
Reduction in area after rupture, per centum of original section		27.6
Position of rupture	".35 from neck	
Character of broken surface	granular; dull silky spot at the circumference	
Elongation of inch sections	".23*, ".08	

H. Ex. 31—62

No. 699.

Marks, $\frac{10 R_1 T}{B T_6 I}$

Length, 5".

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000133	.000133	0.	-----	
5,000	10,000	.000267	.000134	0.	-----	
7,500	15,000	.000467	.000200	0.	-----	
10,000	20,000	.000633	.000166	0.	-----	
12,500	25,000	.000833	.000200	0.	-----	
13,000	26,000	.000867	.000034	-----	-----	
13,500	27,000	.000900	.000033	-----	-----	
14,000	28,000	.000933	.000033	-----	-----	
14,500	29,000	.000967	.000034	-----	-----	
15,000	30,000	.001000	.000033	.000033	.000033	
15,500	31,000	.001067	.000067	-----	-----	
16,000	32,000	.001100	.000033	-----	-----	
16,500	33,000	.001167	.000067	-----	-----	
17,000	34,000	.001200	.000033	-----	-----	
17,500	35,000	.001267	.000067	.000067	.000034	Elastic limit.
18,000	36,000	.001500	.000233	-----	-----	
18,500	37,000	.002067	.000567	-----	-----	
19,000	38,000	.002600	.000533	-----	-----	
19,500	39,000	.003033	.000433	-----	-----	
20,000	40,000	.003667	.000634	-----	-----	
20,500	41,000	.004133	.000466	-----	-----	
21,000	42,000	.004900	.000767	-----	-----	
21,500	43,000	.005500	.000600	-----	-----	
22,000	44,000	.006400	.000900	-----	-----	
36,860	73,720	-----	-----	-----	-----	Ultimate strength.

General summary.

Elastic limit per square inch of original section pounds.. 35,000
 Compression per inch under stress at elastic limit inch.. 0.001267
 Ultimate strength per square inch of original section pounds.. 73,720
 Manner of failure triple flexure

No. 700.

Marks, ^{10 R₁ T}_{B T₇ O}

Length, 4".992.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000233	.000133	0.	.....	
7,500	15,000	.000433	.000200	0.	.....	
10,000	20,000	.000600	.000167	0.	.....	
12,500	25,000	.000800	.000200	0.	.....	
13,000	26,000	.000833	.000033	.....	.....	
13,500	27,000	.000833	0.	.....	.....	
14,000	28,000	.000867	.000034	.....	.....	
14,500	29,000	.000900	.000033	.....	.....	
15,000	30,000	.000933	.000033	— .000033	— .000033	
15,500	31,000	.000967	.000034	.....	.....	
16,000	32,000	.001000	.000033	.....	.....	
16,500	33,000	.010033	.000033	.....	.....	
17,000	34,000	.001100	.000067	.....	.....	
17,500	35,000	.001133	.000033	— .000033	0.	
18,000	36,000	.001133	0.	.....	.....	
18,500	37,000	.001167	.000034	.....	.....	
19,000	38,000	.001233	.000066	.....	.....	
19,500	39,000	.001267	.000034	.....	.....	
20,000	40,000	.001300	.000033	0.	.000633	Elastic limit.
20,500	41,000	.001533	.000233	.....	.....	
21,000	42,000	.001933	.000400	.....	.....	
21,500	43,000	.002300	.000367	.....	.....	
22,000	44,000	.027000	.000400	.....	.....	
22,500	45,000	.003267	.000567	.....	.....	
23,000	46,000	.003900	.000633	.....	.....	
23,500	47,000	.004500	.000600	.....	.....	
24,000	48,000	.005200	.000700	.....	.....	
24,500	49,000	.005600	.000400	.....	.....	
25,000	50,000	.006567	.000967			Ultimate strength.
40,500	81,000	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section.....pounds.. 40,000
 Compression per inch under stress at elastic limit.....inch... 0.001300
 Ultimate strength per square inch of original section.....pounds.. 81,000
 Manner of failure.....triple flexure

No. 701.

Marks, ^{10 R₁ T}_{B T₈ M}
Length, 4''⁹⁹⁵.
Diameter, ''⁷⁹⁸.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000133	.000133	0.	-----	
5,000	10,000	.000300	.000167	0.	-----	
7,500	15,000	.000467	.000167	0.	-----	
10,000	20,000	.000633	.000166	0.	-----	
12,500	25,000	.000833	.000200	0.	-----	
13,000	26,000	.000867	.000034	-----	-----	
13,500	27,000	.000900	.000033	-----	-----	
14,000	28,000	.000933	.000033	-----	-----	
14,500	29,000	.000967	.000034	-----	-----	
15,000	30,000	.001000	.000033	.000033	.000033	
15,500	31,000	.001067	.000067	-----	-----	
16,000	32,000	.001133	.000066	-----	-----	
16,500	33,000	.001200	.000067	-----	-----	Elastic limit.
17,000	34,000	.001600	.000400	-----	-----	
17,500	35,000	.002133	.000533	.000867	.000834	
18,000	36,000	.002433	.000300	-----	-----	
18,500	37,000	.002867	.000434	-----	-----	
19,000	38,000	.003267	.000400	-----	-----	
19,500	39,000	.004000	.000733	-----	-----	
20,000	40,000	.004367	.000367	-----	-----	
20,500	41,000	.005000	.000633	-----	-----	
21,000	42,000	.005667	.000667	-----	-----	
21,500	43,000	.006300	.000633	-----	-----	Ultimate strength.
22,000	44,000	.007100	.000800	-----	-----	
36,750	73,500	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original sectionpounds.. 33,000
Compression per inch under stress at elastic limitinch.. 0.001200
Ultimate strength per square inch of original sectionpounds.. 73,500
Manner of failure..... triple flexure

No. 697.

Marks, ^{10 R, T}_{B R₉}

Length, 4'' .419.

Diameter, '' .798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000267	.000167	0.	.....	
7,500	15,000	.000433	.000166	0.	.....	
10,000	20,000	.000600	.000167	0.	.....	
12,500	25,000	.000767	.000167	0.	.....	
13,000	26,000	.000800	.000033	.....	.....	
13,500	27,000	.000833	.000033	.....	.....	
14,000	28,000	.000900	.000067	.....	.....	
14,500	29,000	.000933	.000033	.....	.....	
15,000	30,000	.001000	.000067	.000033	.000033	
15,500	31,000	.001033	.000033	.....	.....	
16,000	32,000	.001067	.000034	.....	.....	
16,500	33,000	.001133	.000066	.....	.....	
17,000	34,000	.001200	.000067			Elastic limit.
17,500	35,000	.001800	.000600	.000667	.000634	
18,000	36,000	.002233	.000433	.....	.....	
18,500	37,000	.002600	.000367	.....	.....	
19,000	38,000	.003200	.000600	.....	.....	
19,500	39,000	.003667	.000467	.....	.....	
20,000	40,000	.004167	.000500	.....	.....	
20,500	41,000	.004700	.000533	.....	.....	
21,000	42,000	.005300	.000600	.....	.....	
21,500	43,000	.005967	.000667	.....	.....	
22,000	44,000	.006833	.000666			Ultimate strength.
41,380	82,760	.....	.....	.....	.....	

General summary.

Elastic limit per square inch of original section pounds.. 34,000
 Compression per inch under stress at elastic limit..... inch.. 0.001200
 Ultimate strength per square inch of original section..... pounds.. 82,760
 Manner of failure..... triple flexure

No. 698.

Marks, ^{10 R, T}_{B R₁₀}
Length, 4".423.
Diameter, ".798.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	.....	
5,000	10,000	.000233	.000133	0.	.....	
7,500	15,000	.000433	.000200	0.	.....	
10,000	20,000	.000633	.000200	0.	.....	
12,500	25,000	.000833	.000200	0.	.....	
13,000	26,000	.000867	.000034	.....	.....	
13,500	27,000	.000900	.000033	.....	.....	
14,000	28,000	.000933	.000033	.....	.....	
14,500	29,000	.000967	.000034	.....	.....	
15,000	30,000	.001000	.000033	.000067	.000067	
15,500	31,000	.001067	.000067	.....	.....	
16,000	32,000	.001100	.000033	.....	.....	
16,500	33,000	.001167	.000067	.....	.....	
17,000	34,000	.001233	.000066			Elastic limit.
17,500	35,000	.001633	.000400	.000567	.000500	
18,000	36,000	.002167	.000534	.....	.....	
18,500	37,000	.002700	.000533	.....	.....	
19,000	38,000	.003200	.000500	.....	.....	
19,500	39,000	.003700	.000500	.....	.....	
20,000	40,000	.004133	.000433	.....	.....	
20,500	41,000	.004600	.000467	.....	.....	
21,000	42,000	.005467	.000867	.....	.....	
21,500	43,000	.005900	.000433	.....	.....	
22,000	44,000	.006533	.000633			Ultimate strength.
40,420	80,840	.....	.....	.....	.....	

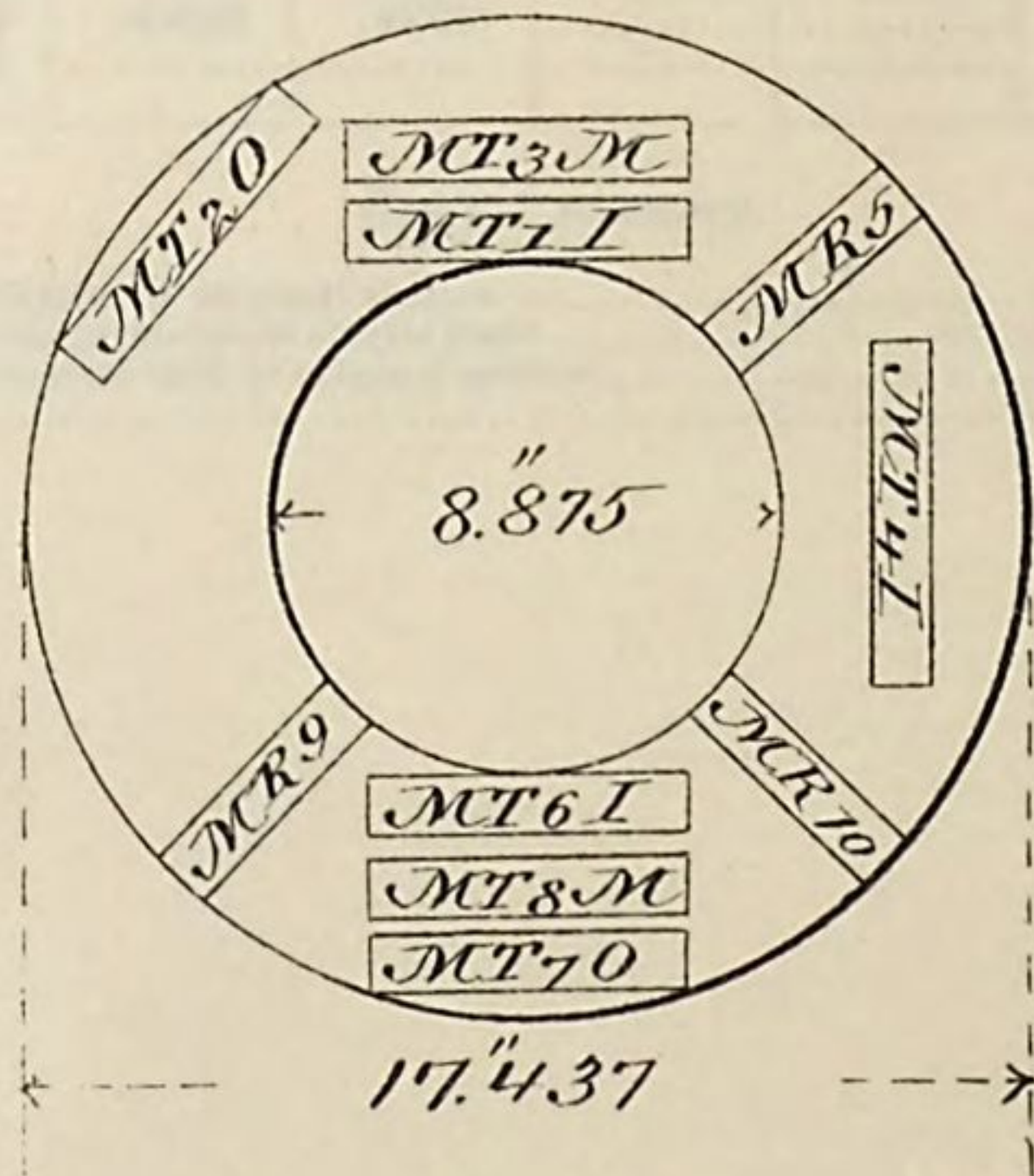
General summary.

Elastic limit per square inch of original sectionpounds.. 34,000
Compression per inch under stress at elastic limitinch.. 0.001233
Ultimate strength per square inch of original sectionpounds.. 80,840
Manner of failuretriple flexure

10" Steel B. L. Rifle No. 1

Tube

Muzzle end



H Ex 31 49 2

No. 2657.

Marks, ^{10 R, T}_{MT, I}

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	.....	.....	
2,500	10,000	.000233	.000133	.....	.....	
3,750	15,000	.000400	.000167	.....	.....	
5,000	20,000	.000633	.000233	.....	.....	
6,250	25,000	.000833	.000200	.....	.....	
7,500	30,000	.001100	.000267	.000100	.000100	
7,750	31,000	.001167	.000067	.....	.....	Elastic limit.
8,000	32,000	.001333	.000166	.....	.....	
8,250	33,000	.001667	.000334	.....	.....	
8,500	34,000	.002167	.000500	.....	.....	
8,750	35,000	.002667	.000500	.001367	.001267	
9,000	36,000	.002900	.000233	.....	.....	
9,250	37,000	.003133	.000233	.....	.....	
9,500	38,000	.003500	.000367	.....	.....	
9,750	39,000	.003767	.000267	.....	.....	
10,000	40,000	.004400	.000633	.....	.....	
10,250	41,000	.004767	.000367	.....	.....	
10,500	42,000	.005200	.000433	.....	.....	
10,750	43,000	.005667	.000467	.....	.....	
11,000	44,000	.006500	.000833	.....	.....	
11,250	45,000	.006900	.000400	.....	.....	
11,500	46,000	.007467	.000567	.....	.....	
11,750	47,000	.008100	.000633	.....	.....	
12,000	48,000	.008833	.000733	.....	.....	
12,250	49,000	.009567	.000734	.....	.....	
12,500	50,000	.010333	.000766	.....	.....	
13,000	52,000	.011767	.001434	.....	.....	
13,500	54,000	.013733	.001966	.....	.....	
14,000	56,000	.015667	.001934	.....	.....	
14,500	58,000	.017733	.002066	.....	.....	
15,000	60,000	.019867	.002134	.....	.....	
15,500	62,000	.022400	.002533	.....	.....	
16,000	64,000	.025033	.002633	.....	.....	
16,500	66,000	.028000	.002967	.....	.....	
17,000	68,000	.031333	.003333	.....	.....	
17,500	70,000	.035000	.003667	.....	.....	
18,000	72,000	.038333	.003333	.....	.....	
18,500	74,000	.041667	.003334	.....	.....	
19,000	76,000	.0533	.011633	.....	.....	
19,500	78,000	.0600	.0067	.....	.....	
20,000	80,000	.0667	.0067	.....	.....	
20,500	82,000	.0767	.0100	.....	.....	
21,000	84,000	.0967	.0200	.....	.....	
21,450	85,800	.1600	.0633	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section	pounds..	85,800
Elastic limit per square inch of original section	do...	31,000
Elongation per inch after rupture	inch..	0.2100
Elongation per inch under strain at elastic limit	do...	.001167
Reduction in diameter at point of rupture	do...	.114
Reduction in area after rupture, per centum of original section		36.4
Position of rupture	$\frac{1}{2}$ inch from neck	
Character of broken surface	granular; radiating from a silky spot at the circumference	
Elongation of inch sections	".30", ".18", ".15	

No. 2658.

Marks, $\frac{10 R_1 T}{M T_2 O}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000133	0.	.....	
2,500	10,000	.000267	.000134	0.	.....	
3,750	15,000	.000433	.000166	0.	.....	
5,000	20,000	.000633	.000200	0.	.....	
6,250	25,000	.000767	.000134	0.	.....	
7,500	30,000	.001000	.000233	0.	.....	
7,750	31,000	.001033	.000033	.....	.....	
8,000	32,000	.001067	.000034	.....	.....	
8,250	33,000	.006300	.005233			Elastic limit.
8,500	34,000	.007467	.001167	.....	.....	
8,750	35,000	.007933	.000466	.....	.....	
9,000	36,000	.009000	.001067	.....	.....	
9,250	37,000	.009667	.000667	.....	.....	
9,500	38,000	.010833	.001166	.....	.....	
9,750	39,000	.012000	.001167	.....	.....	
10,000	40,000	.012700	.000700	.....	.....	
10,250	41,000	.013567	.000867	.....	.....	
10,500	42,000	.014833	.001266	.....	.....	
10,750	43,000	.015833	.001000	.....	.....	
11,000	44,000	.017067	.001234	.....	.....	
11,250	45,000	.018033	.000966	.....	.....	
11,500	46,000	.019500	.001467	.....	.....	
11,750	47,000	.020667	.001167	.....	.....	
12,000	48,000	.022000	.001333	.....	.....	
12,250	49,000	.023467	.001467	.....	.....	
12,500	50,000	.025333	.001866	.....	.....	
13,000	52,000	.028400	.003067	.....	.....	
13,500	54,000	.032000	.003600	.....	.....	
14,000	56,000	.036167	.004167	.....	.....	
14,500	58,000	.038333	.002166	.....	.....	
15,000	60,000	.041667	.003334	.....	.....	
15,500	62,000	.0533	.011633	.....	.....	
16,000	64,000	.0633	.0100	.....	.....	
16,500	66,000	.0700	.0067	.....	.....	
17,000	68,000	.0867	.0167	.....	.....	
17,500	70,000	.1033	.0166	.....	.....	
18,000	72,000	.1567	.0534	.....	.....	
18,060	72,240	.1800	.0233			Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	72,240
Elastic limit per square inch of original section.....	do..	32,000
Elongation per inch after rupture.....	inch..	0.2600
Elongation per inch under strain at elastic limit.....	do..	.001067
Reduction in diameter at point of rupture.....	do..	.134
Reduction in area after rupture, per centum of original section.....		41.9
Position of rupture.....	".90 from neck	
Character of broken surface.....	silky	
Elongation of inch sections.....	".16, ".24, ".38*	

No. 2659.

Marks, $\frac{10 R_1 T}{M T_3 M}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000100	.000100	0.	.....	
2,500	10,000	.000233	.000133	0.	.....	
3,750	15,000	.000400	.000167	0.	.....	
5,000	20,000	.000567	.000167	0.	.....	
6,250	25,000	.000733	.000166	0.	.....	
7,500	30,000	.000967	.000234	0.	.....	
7,750	31,000	.001000	.000033	.....	.....	
8,000	32,000	.001033	.000033	.....	.....	
8,250	33,000	.001100	.000067	.....	.....	Elastic limit.
8,500	34,000	.001400	.000300	.....	.....	
8,750	35,000	.002133	.000733	.....	.....	
9,000	36,000	.002800	.000667	.....	.....	
9,250	37,000	.003333	.000533	.....	.....	
9,500	38,000	.004167	.000834	.....	.....	
9,750	39,000	.004767	.000600	.....	.....	
10,000	40,000	.005667	.000900	.....	.....	
10,250	41,000	.006333	.000666	.....	.....	
10,500	42,000	.007267	.000934	.....	.....	
10,750	43,000	.008100	.000833	.....	.....	
11,000	44,000	.008833	.000733	.....	.....	
11,250	45,000	.009800	.000967	.....	.....	
11,500	46,000	.010733	.000933	.....	.....	
11,750	47,000	.011667	.000934	.....	.....	
12,000	48,000	.012667	.001000	.....	.....	
12,250	49,000	.013567	.000900	.....	.....	
12,500	50,000	.014733	.001166	.....	.....	
13,000	52,000	.017067	.002334	.....	.....	
13,500	54,000	.019667	.002600	.....	.....	
14,000	56,000	.022500	.002833	.....	.....	
14,500	58,000	.025667	.003167	.....	.....	
15,000	60,000	.028667	.003000	.....	.....	
15,500	62,000	.033000	.004333	.....	.....	
16,000	64,000	.036667	.003667	.....	.....	
16,500	66,000	.0400	.003333	.....	.....	
17,000	68,000	.0500	.0100	.....	.....	
17,500	70,000	.0567	.0067	.....	.....	
18,000	72,000	.0667	.0100	.....	.....	
18,500	74,000	.0767	.0100	.....	.....	
19,000	76,000	.0967	.0200	.....	.....	
19,500	78,000	.1400	.0433	.....	.....	
19,550	78,200	.1700	.0300	.....	.....	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	78,200
Elastic limit per square inch of original section.....	do...	33,000
Elongation per inch after rupture.....	inch..	0.2367
Elongation per inch under strain at elastic limit.....	do...	.001100
Reduction in diameter at point of rupture.....	do...	.084
Reduction in area after rupture, per centum of original section.....		27.6
Position of rupture.....		1".60 from neck
Character of broken surface.....	granular; radiating from a dull silky spot at circumference	
Elongation of inch sections.....		".19, ".31*, ".21

No. 2660.

Marks, $\frac{10}{M} R_1 T$
 $\frac{M}{T_4} M$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000133	.000123	0.	-----	
2,500	10,000	.000300	.000167	0.	-----	
3,750	15,000	.000467	.000167	0.	-----	
5,000	20,000	.000633	.000166	0.	-----	
6,250	25,000	.000867	.000234	.000033	.000033	Elastic limit.
7,500	30,000	.001133	.000266	.000133	.000100	
7,750	31,000	.001233	.000100	-----	-----	
8,000	32,000	.001333	.000100	-----	-----	
8,250	33,000	.001567	.000234	-----	-----	
8,500	34,000	.001933	.000366	-----	-----	
8,750	35,000	.002600	.000667	-----	-----	
9,000	36,000	.003733	.001133	-----	-----	
9,250	37,000	.004333	.000600	-----	-----	
9,500	38,000	.005167	.000834	-----	-----	
9,750	39,000	.006000	.000833	-----	-----	
10,000	40,000	.006767	.000767	-----	-----	
10,250	41,000	.007500	.000733	-----	-----	
10,500	42,000	.008433	.000933	-----	-----	
10,750	43,000	.009167	.000734	-----	-----	
11,000	44,000	.010067	.000900	-----	-----	
11,250	45,000	.010833	.000766	-----	-----	
11,500	46,000	.012000	.001167	-----	-----	
11,750	47,000	.012833	.001633	-----	-----	
12,000	48,000	.014000	.001167	-----	-----	
12,250	49,000	.015000	.001000	-----	-----	
12,500	50,000	.016333	.001333	-----	-----	
13,000	52,000	.018667	.002334	-----	-----	
13,500	54,000	.021333	.002666	-----	-----	
14,000	56,000	.024367	.003034	-----	-----	
14,500	58,000	.027333	.002966	-----	-----	
15,000	60,000	.030667	.001334	-----	-----	
15,500	62,000	.034667	.004000	-----	-----	
16,000	64,000	.039000	.004333	-----	-----	
16,500	66,000	.0433	.0043	-----	-----	
17,000	68,000	.0500	.0067	-----	-----	
17,500	70,000	.0600	.0100	-----	-----	
18,000	72,000	.0700	.0100	-----	-----	
18,500	74,000	.0833	.0133	-----	-----	
19,000	76,000	.1033	.0200	-----	-----	
19,430	77,720	.1700	.0667	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	77,720
Elastic limit per square inch of original section.....	do...	30,000
Elongation per inch after rupture.....	inch..	0.2567
Elongation per inch under strain at elastic limit.....	do...	.001133
Reduction in diameter at point of rupture.....	do...	.1094
Reduction in area after rupture, per centum of original section.....		30.6
Position of rupture.....	1.12 inches from neck	
Character of broken surface.....	granular, 50 per centum; silky, 50 per centum	
Drew down to.....	".46 diameter $\frac{3}{8}$ inch from point of rupture	
Elongation of inch sections.....	".28", ".32", ".17	

No. 2661.

Marks, $\frac{10 R_1 T}{M R_5}$

Diameter, ".564.

Sectional area, .25 square inch.

Applied loads.		Elongation per inch.	Successive elongation per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
250	1,000	0.	0.	0.	0.	Initial load.
1,250	5,000	.000050	.000050	0.	-----	
2,500	10,000	.000200	.000150	0.	-----	
3,750	15,000	.000400	.000200	0.	-----	
5,000	20,000	.000650	.000250	.000000	.000000	
5,750	23,000	.000900	.000250	-----	-----	Elastic limit.
6,000	24,000	.001000	.000100	-----	-----	
6,250	25,000	.001150	.000150	.000200	.000200	
6,500	26,000	.001250	.000100	-----	-----	
6,750	27,000	.001400	.000150	-----	-----	
7,000	28,000	.001650	.000250	-----	-----	
7,250	29,000	.002000	.000350	-----	-----	
7,500	30,000	.002300	.000300	.001150	.000950	
7,750	31,000	.002600	.000300	-----	-----	
8,000	32,000	.002950	.000350	-----	-----	
8,250	33,000	.003200	.000250	-----	-----	
8,500	34,000	.003900	.000700	-----	-----	
8,750	35,000	.004400	.000500	-----	-----	
9,000	36,000	.005000	.000600	-----	-----	
9,250	37,000	.005400	.000400	-----	-----	
9,500	38,000	.006000	.000600	-----	-----	
9,750	39,000	.006600	.000600	-----	-----	
10,000	40,000	.007500	.000990	-----	-----	
10,250	41,000	.008150	.000650	-----	-----	
10,500	42,000	.009000	.000850	-----	-----	
10,750	43,000	.009800	.000800	-----	-----	
11,000	44,000	.010650	.000850	-----	-----	
11,250	45,000	.011550	.000900	-----	-----	
11,500	46,000	.012500	.000950	-----	-----	
11,750	47,000	.013400	.000900	-----	-----	
12,000	48,000	.014500	.001100	-----	-----	
12,250	49,000	.015600	.001100	-----	-----	
12,500	50,000	.016750	.001150	-----	-----	
13,000	52,000	.019350	.002300	-----	-----	
13,500	54,000	.022000	.002950	-----	-----	
14,000	56,000	.024500	.002500	-----	-----	
14,500	58,000	.027500	.003000	-----	-----	
15,000	60,000	.030750	.003250	-----	-----	
15,500	62,000	.034700	.003950	-----	-----	
16,000	64,000	.037500	.002800	-----	-----	
16,500	66,000	.0450	.007500	-----	-----	
17,000	68,000	.0500	.0050	-----	-----	
17,500	70,000	.0525	.0025	-----	-----	
18,000	72,000	.0600	.0075	-----	-----	
18,500	74,000	.0700	.0100	-----	-----	
19,000	76,000	.0900	.0200	-----	-----	
19,500	78,000	.1100	.0200	-----	-----	
19,880	79,520	.1650	.0550	-----	-----	Tensile strength.

General summary.

Tensile strength per square inch of original section.....	pounds..	79,520
Elastic limit per square inch of original section.....	do...	23,000
Elongation per inch after rupture.....	inch..	0.2300
Elongation per inch under strain at elastic limit.....	do...	.000900
Reduction in diameter at point of rupture.....	do...	.094
Reduction in area after rupture, per centum of original section.....		30.6
Position of rupture.....		".90 from neck
Character of broken surface.....	granular, with belt of dull flaky metal across broken surface	
Elongation of inch sections.....		".20, ".26"

No. 692.

Marks, $\frac{10 R_1 T}{M T_6 I}$

Length, 4".992.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000067	.000067	0.	.....	
5,000	10,000	.000233	.000166	0.	.....	
7,500	15,000	.000400	.000167	0.	.....	
10,000	20,000	.000567	.000167	0.	.....	
12,500	25,000	.000733	.000166	0.		Elastic limit.
15,000	30,000	.001000	.000267	.000067	.000067	
15,500	31,000	.001233	.000233	.....	.....	
16,000	32,000	.001467	.000234	.....	.....	
16,500	33,000	.001833	.000366	.....	.....	
17,000	34,000	.002700	.000867	.....	.....	
17,500	35,000	.003667	.000967	.....	.....	
18,000	36,000	.004667	.001000	.....	.....	
18,500	37,000	.005667	.001000	.....	.....	
19,000	38,000	.006100	.000433	.....	.....	
19,500	39,000	.006733	.000633	.....	.....	
20,000	40,000	.007333	.000600	.....	.....	
35,150	70,300	.....	.....	.....	.....	
						Ultimate strength.

General summary.

Elastic limit per square inch of original section pounds.. 30,000
 Compression per inch under stress at elastic limit inch.. 0.001000
 Ultimate strength per square inch of original section pounds.. 70,300
 Manner of failure triple flexure

No. 693.

Marks, ^{10 R, T}_{M T, O}
Length, 4''¹¹.992.
Diameter, ''¹¹.798.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	-----	
5,000	10,000	.000267	.000167	0.	-----	
7,500	15,000	.000467	.000200	0.	-----	
10,000	20,000	.000633	.000166	0.	-----	
12,500	25,000	.000800	.000167	0.	-----	
13,000	26,000	.000833	.000033	-----	-----	
13,500	27,000	.000867	.000034	-----	-----	Elastic limit.
14,000	28,000	.000933	.000066	-----	-----	
14,500	29,000	.003333	.002400	-----	-----	Deflected convex on the micrometer side of specimen.
15,000	30,000	.002733	.000600	.001733	.001733	
15,500	31,000	.002833	.000100	-----	-----	
16,000	32,000	.003500	.000667	-----	-----	Ultimate Strength.
16,500	33,000	.004500	.001000	-----	-----	
17,000	34,000	.005333	.000833	-----	-----	
30,980	61,960	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section.....pounds.. 28,000
Compression per inch under stress at elastic limit.....inch.. 0.000933
Ultimate strength per square inch of original section.....pounds.. 61,960
Manner of failure..... triple flexure

No. 694.

Marks, ^{10 R, T}_{M T₈ M}
Length, 4''⁹⁹⁶.
Diameter, ''⁷⁹⁸.
Sectional area, .50 square inch.

Applied loads.		Compres- sion per inch.	Successive compres- sion per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000133	.000133	0.	-----	
5,000	10,000	.000267	.000134	0.	-----	
7,500	15,000	.000467	.000200	0.	-----	
10,000	20,000	.000633	.000166	0.	-----	
12,500	25,000	.000867	.000234	.000067	.000067	Elastic limit.
13,000	26,000	.000900	.000033	-----	-----	
13,500	27,000	.000933	.000033	-----	-----	
14,000	28,000	.001033	.000100	-----	-----	
14,500	29,000	.001133	.000100	-----	-----	
15,000	30,000	.001267	.000134	.000333	.000266	
15,500	31,000	.001867	.000600	-----	-----	
16,000	32,000	.002400	.000533	-----	-----	
16,500	33,000	.003100	.000700	-----	-----	
17,000	34,000	.003600	.000500	-----	-----	
17,500	35,000	.004333	.000733	-----	-----	
18,000	36,000	.005000	.000667	-----	-----	
18,500	37,000	.006000	.001000	-----	-----	
19,000	38,000	.006600	.000600	-----	-----	
19,500	39,000	.007067	.000467	-----	-----	
20,000	40,000	.007767	.000700	-----	-----	Ultimate strength.
34,600	69,200	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original sectionpounds.. 27,000
Compression per inch under stress at elastic limitinch.. 0.000933
Ultimate strength per square inch of original sectionpounds.. 69,200
Manner of failure.....triple flexure

No. 695.

Marks, ^{10 R₁ T}
_{M R₂}

Length, 4".092.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000133	.000133	0.	-----	
5,000	10,000	.000300	.000167	0.	-----	
7,500	15,000	.000467	.000167	0.	-----	
10,000	20,000	.000633	.000166	0.	-----	
12,500	25,000	.000833	.000200	.000033	.000033	Elastic limit.
13,000	26,000	.000867	.000034	-----	-----	
13,500	27,000	.000900	.000033	-----	-----	
14,000	28,000	.000967	.000067	-----	-----	
14,500	29,000	.001667	.000700	-----	-----	
15,000	30,000	.002400	.000733	.001333	.001300	
15,500	31,000	.002633	.000233	-----	-----	
16,000	32,000	.002900	.000267	-----	-----	
16,500	33,000	.003300	.000400	-----	-----	
17,000	34,000	.003867	.000567	-----	-----	
17,500	35,000	.004533	.000666	-----	-----	
18,000	36,000	.004933	.000400	-----	-----	
18,500	37,000	.005833	.000900	-----	-----	
19,000	38,000	.007333	.001500	-----	-----	
39,380	78,760	-----	-----	-----	-----	Ultimate strength.

General summary.

Elastic limit per square inch of original sectionpounds.. 28,000
 Compression per inch under stress at elastic limit.....inch.. 0.000967
 Ultimate strength per square inch of original sectionpounds.. 78,760
 Manner of failure.....triple flexure

No. 696.

Marks, $\frac{10 R_1 T}{M R_{10}}$

Length, 4".102.

Diameter, ".798.

Sectional area, .50 square inch.

Applied loads.		Compression per inch.	Successive compression per inch.	Permanent set.	Successive permanent set.	Remarks.
Total.	Per square inch.					
<i>Pounds.</i>	<i>Pounds.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	<i>Inch.</i>	
500	1,000	0.	0.	0.	0.	Initial load.
2,500	5,000	.000100	.000100	0.	-----	
5,000	10,000	.000267	.000167	0.	-----	
7,500	15,000	.000467	.000200	0.	-----	
10,000	20,000	.000633	.000166	0.	-----	
12,500	25,000	.000800	.000167	.000033	.000033	
13,000	26,000	.000833	.000033	-----	-----	
13,500	27,000	.000867	.000034	-----	-----	
14,000	28,000	.000900	.000033	-----	-----	
14,500	29,000	.000933	.000033	-----	-----	
15,000	30,000	.001000	.000067	.000033	0.	Elastic limit.
15,500	31,000	.001033	.000033	-----	-----	
16,000	32,000	.002333	.001300	-----	-----	
16,500	33,000	.002833	.000500	-----	-----	
17,000	34,000	.003667	.000834	-----	-----	
17,500	35,000	.004567	.000900	-----	-----	
18,000	36,000	.005167	.000600	-----	-----	
18,500	37,000	.006000	.000833	-----	-----	
19,000	38,000	.006667	.000667	-----	-----	Ultimate strength.
39,670	79,340	-----	-----	-----	-----	

General summary.

Elastic limit per square inch of original section pounds.. 31,000
 Compression per inch under stress at elastic limit inch.. 0.001033
 Ultimate strength per square inch of original section pounds.. 79,340
 Manner of failure triple flexure

